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The OIL WEEKLY

OIL and GAS ENGINEERING

FOR OIL AND GAS PRODUCERS AND PIPE LINE MEN

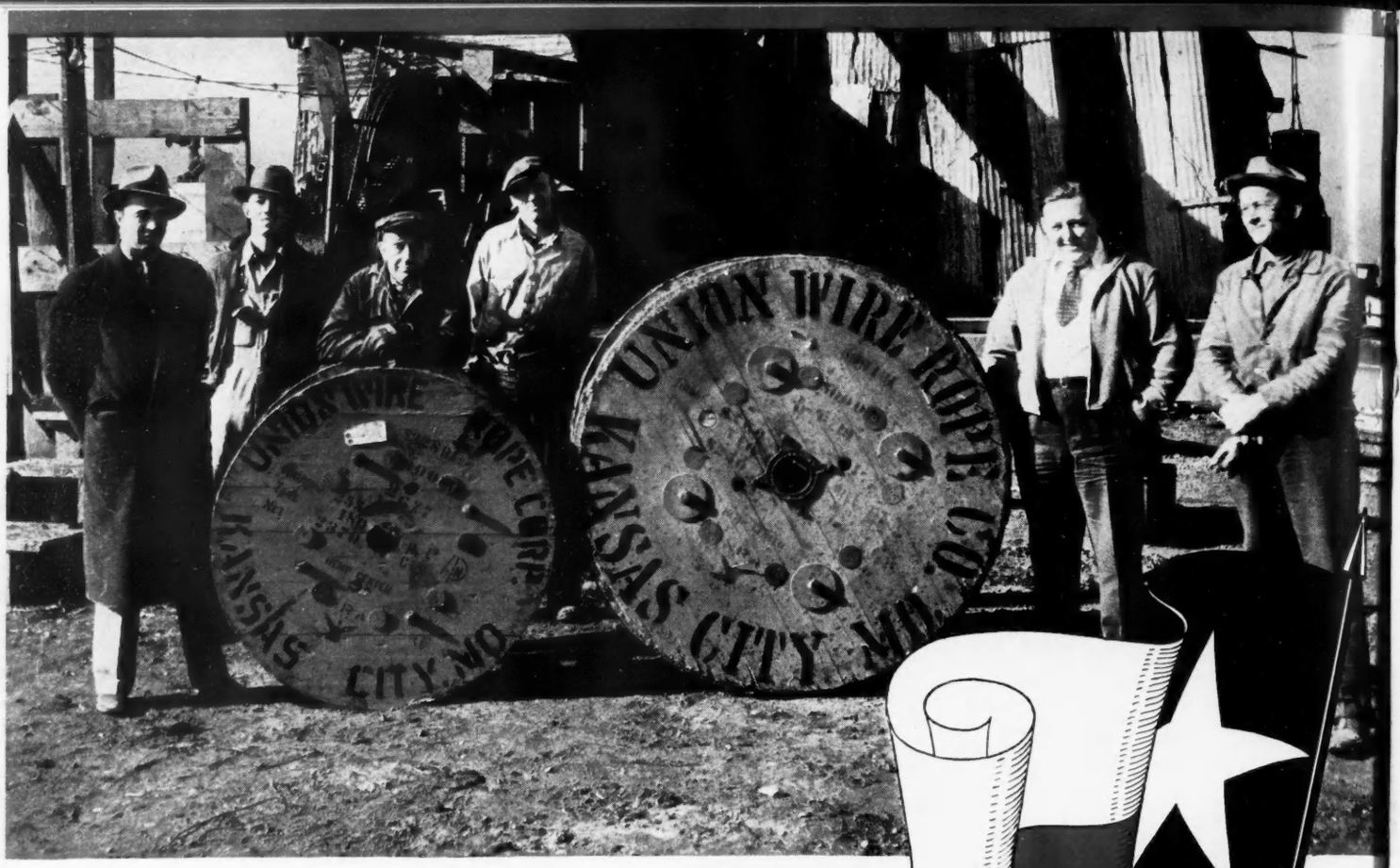
NOV 12 1936

THE WEEK'S NEWS INTERPRETED

NOT ONE FOR ALL . . . BUT
"TAILOR-Made"

SEE PAGES: 35 36 37 38

VOLUME 83 OCTOBER 12, 1936 NUMBER 5



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More and more Texans are using UNION Wire Lines as an important part of their equipment for drilling oil wells *right*. The increasing popularity of UNION Lines everywhere, is evidence that they represent the *maximum* in strength and durability. The *extra* service built into every UNION Line makes low-cost performance a certainty.

The photograph shows "Culler No. 9" which was drilled for the Empire Gas & Fuel Company by J. Ross McGill, contractor. The well is located in Gray County, Pampa, Texas. Those in the picture, left to right, are: W. B. Hasenfuss, Union Wire Rope Corp.; Orville Turner; O. W. Gardner, driller; C. V. Forsman, tool dresser; Fred Buckles, Jarecki Mfg. Co.; and Warren Johnson, tool pusher.

See our Exhibit at the Texas Centennial Central Exposition, Dallas, Section "B", Spaces Nos. 1 and 2, Transportation Bldg.

Interesting Facts About Texas

Texas comprises 1/12 total area of the United States.

Chicago is closer than El Paso to Texarkana, Texas.

Texas has more miles of railroad than any other state; has 160,000 miles of public highways.

Has one ranch which is larger than the State of Delaware.

Produces more cotton than any other state.

Grows more than 100 different kinds of crops.

Has 700 species of birds and 270 kinds of fish.

Raises more cattle, sheep, goats and horses than any other state.

Only 15% of Texas' natural resources have been developed.

If all the roads in Texas were laid end to end, they would encircle the earth seven times.

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"But, how can I KNOW

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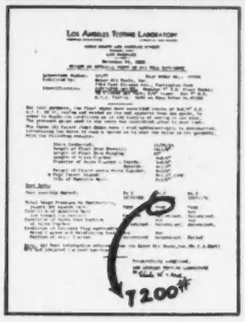
POINT NO. 1 — IS IT STRONG ENOUGH TO BE SAFE?

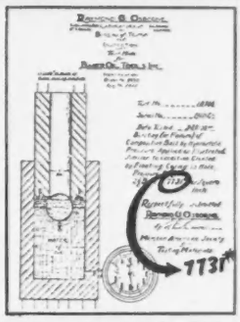
And the answer is—"If cementing equipment is as strong as these tests show Baker Cement Equipment to be, you are entirely safe."

Baker Cement Float Shoes are made from seamless steel, into which are anchored plug and valve assemblies made of "Baker Formula" concrete, and Bakelite.



Refer to the illustrations which show the results of tests by reputable independent Testing Laboratories, made upon shoes selected at random from stock.

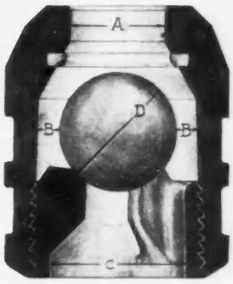
The entire assembly is safe far beyond the extreme demands in the field in the deepest wells, which proves Point No. 1, and permits us to read on to . . .



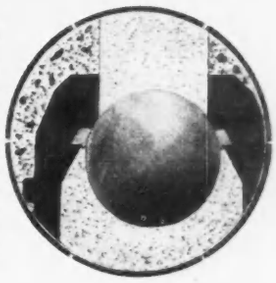
POINT NO. 2 — HAS IT AN EFFICIENT VALVE ACTION?

And the answer, "If the cement can be put away freely, and positively held outside the shoe, you are SURE about valve efficiency."

Baker Cement Equipment has a valve assembly made entirely of Bakelite, with circulation passageways large enough to permit free flow of cement slurry, but small enough to retain a "wash down" action which is so often an important feature. Illustration to right.



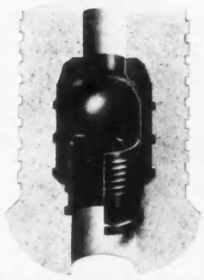
And after the cement has been placed outside the shoe and up around the casing, the Bakelite ball (which floats in cement slurry or ordinary rotary mud) instantly seats when pressure is reversed. Whether the back-pressure is low or high, this BAKELITE ball double-seals against a rubber ring and a Bakelite seat to provide a positive, leak-proof seal.



POINT NO. 3 — Can it be COMPLETELY & EASILY Drilled up?

And the answer, "The entire plug and valve assembly are made only of "Baker-Formula" Concrete and Bakelite."

It is easy to visualize from illustration to right how rapidly and smoothly the plug and valve assembly drill out of any piece of Baker Cement Equipment. The concrete drills up into small uniform fragments, and the Bakelite valve cage is held in position for fast grinding-up by the bit.



And in minimum time the internal construction is reduced to small particles which circulate out of the hole with rotary mud. You have lost no time, the same bit used for drilling out the shoe is not dulled, but is ready to make additional footage, with no danger of being deflected by metal to start an off-vertical hole. Or, if desired, you can CORE IMMEDIATELY BELOW THE SHOE with no trouble from metal or other objectionable fragments left on bottom after the shoe has been drilled out.

LOOK ON PAGES 169 TO 178 OF YOUR 1936 COMPOSITE CATALOG

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for guiding — floating — cementing casing

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OFTEN WHEN OTHER SWABS WILL NOT GO IN THE HOLE

THE MISSION VALVELESS SWAB FALLS LIKE A PLUMMET

Because ...

the split-rubber, shown in the illustration, allows free by-pass for gas; and often permits Mission Swabs to pass through paraffin that stops other swabs.....

SAFEST SWAB *to* OPERATE

The Mission Swab *will not blow out of the hole when pulling load,* as gas pressure will open split rubber, permitting gas to by-pass, resuming its load without loss after gas has passed.

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THE OIL WEEKLY

FOR OIL AND GAS PRODUCERS
AND PIPE LINE MEN

ENGINEERING NEWS STATISTICS

WARREN L. BAKER, Editor

. . . this Week

ABOVE-GROUND stocks, expressed in days supply, are lowest since 1921. But still things are not as secure as might be. Having passed a summer of accord between the leading producing states as concerns observance of the quotas set for crude oil production each month by the United States Bureau of Mines, the Texas authorities have set that state's allowable above the Bureau figure, and Oklahoma and Kansas are expected to follow suit, and that will make it unanimous. Opinion is divided as to wisdom of increasing output and again building storage at this time. Some see no harm in filling tanks while others contend that increased flow will decrease prices and hold income at its present figure.
Page 11.

A NEW method of estimating oil and gas reserves is discussed by R. L. Huntington before the A. I. M. E. meeting at Fort Worth. He discusses certain hypothetical cases and points out that with solubility-shrinkage and pressure-volume-temperature data on the original bottom-hole fluids of a reservoir, along with fairly accurate statistics on production, the actual quantity of liquids or gas in a reservoir can be estimated. **Page 25.**

A WELL at Silsbee, Hardin County, Texas, that has been burning for 59 days was extinguished last week by pumping water through a directionally drilled hole. In many respects this achievement is unusual. In the first place, the depth of 7024 feet is the greatest yet penetrated by a test drilled for this purpose. Moreover, the surface distance between the burning well and the relief well was nearly twice as great as existed in three previously drilled relief tests.
Page 20.

FORGOTTEN by all but the lawyers, Jimmie Allred's suit against the oil industry in Texas again comes to life and will have a hearing before the Texas Supreme Court. Meanwhile the legislature is in session looking greedily at the industry as a source of revenue for social security needs. Fines asked in the suit which started back in 1931 would pay the amount sought by the legislature for one year. **Page 8.**

The Oil Man's Calendar

OCT. 16–17	American Association of Petroleum Geologists, San Antonio Section, Eagle Pass, Texas.
19–23	American Institute of Mining and Metallurgical Engineers, Cleveland, Ohio.
25–30	American Gas Association, Atlantic City, New Jersey.
	American Association of Petroleum Geologists, Pacific Coast Section, Los Angeles, California.
NOV. 5– 6	American Association of Petroleum Geologists, Pacific Section, Biltmore Hotel, Los Angeles, California.
7–16	American Institute of Mining and Metallurgical Engineers, Western Meeting, Mexico City, Mexico.
9–12	American Petroleum Institute, 17th Annual Meeting, Chicago, Illinois.
20	Mid-Continent Oil and Gas Association, Kansas-Oklahoma Division, Tulsa, Oklahoma.
NOV. 30– DEC. 1	Independent Petroleum Association of America, Biltmore Hotel, Oklahoma City, Oklahoma.
NOV. 30– DEC.	American Society of Mechanical Engineers, Annual Meeting, Society's Building, New York.
	Mid-Continent Oil and Gas Association, Texas Division, Annual Meeting, Houston, Texas.
15	Mid-Continent Oil and Gas Association, Annual Meeting of General Board of Directors, Tulsa, Oklahoma.

MEANS of preventing waste in the taking of potential tests under proration regulations cannot be had until state laws are revised to conform to sound operating practices. Probably the logical solution would be a study of each field by a committee of engineers who would make recommendations as to the proper procedure in developing and producing those fields.
Page 39.

IT is normally possible to complete wells under pressure control without having to combat pressures nearly equal to those of the well when closed in. By controlling the amount and gravity of the fluid circulated, completion under pressure control is taken out of the hazardous class of oil field operations and places it among the more or less routine operations.
Page 46.

A WELL attended meeting of the petroleum division of the American Institute of Mining and Metallurgical Engineers took place last week in Fort Worth. It was featured by discussions on outstanding current drilling, producing and economic engineering subjects. Engineering education and metallurgy were also topics of importance. **Page 8.**

THE taking of proper precautions in selecting samples for permeability measurements is of importance. The sample should be representative of the core from which the sample is taken. The bedding plane should be noted, as it is desirable to obtain permeability determinations both parallel to and perpendicular to the bedding plane. Portions of the sample not homogeneous in their composition should be eliminated. By selecting a cube as a sample both horizontal and vertical permeabilities may be determined on one sample. **Page 54.**

A. I. M. E. Meeting

CURRENT TECHNICAL PROBLEMS FEATURE VARIED PROGRAM

FORT WORTH.

OUTSTANDING current drilling, production and economic engineering subjects featured the meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, held at Fort Worth, October 8 and 9. In addition, discussions were devoted to engineering education and metallurgy.

The meeting was honored by the presence of John M. Lovejoy, national president, who also is president of Seaboard Oil Company. Secretary A. B. Parsons, also from New York, accompanied him.

Drilling Problems Discussed

The first session of the Institute was devoted to drilling problems and was featured by papers and discussions on heaving shale and pressure control drilling.

Paul Weaver, Gulf Oil Corporation, Houston, spoke on the causes for heaving shale. He brought out another principle for the peculiar and uncertain actions of shales. Confining most of his remarks to a field located on the Golden Lane of Mexico, Weaver showed that there was no heaving shale present in the area during its first drilling development stage, but a period followed in which violent heaves gave much trouble. A third and later development period gave no trouble to drilling wells. Through a study of conditions and factors that existed in the field he developed his theory that frequently the action of heaving shale may be the result of pressures migrating from some deeper stratum into shallower, small reservoirs. In the Golden Lane field that he described, no heaving shales were encountered until after completion of the fourth well, which was a 50,000-barrel producer. The casing strings were installed in such a fashion in this well that it was possible for the production to exert a pressure on an upper formation by flowing down the annular space between the flow pipe and the next and shorter string of casing. He substantiated his theory that this action took place by disclosing that a number of seepages from which large volumes of oil were recovered soon made their appearances in the vicinity of the well. Later the well commenced showing emulsions, which also were found in the seeps. The volume of oil recovered from the seeps, which amounted at times to 30,000 barrels daily, together with the emulsification, caused the well to be killed.

All wells drilled in the field following the seepage of oil from well No. 4, encountered heaving shale and had great difficulty in attempting to penetrate it. Several years after the well had been killed, none of the tests that were drilled found heaving shale. It was Weaver's opinion that the infiltration of the pressures from well No. 4 into the upper stratum caused it to become a heaving formation, and that when this condition was corrected it no longer had sufficient pressure to cause the formation to flow.

Several that took part in the discussions following Weaver's talk concurred with him in his views. However, all were of the opinion that there are several reasons for heaving shales, and that any one or a multiple number of these might result in heaves.

"We were surprised to find it is possible to complete wells under pressure control without having to combat pressures more nearly equal to those of the well when closed in," stated John O. Farmer, Otis Pressure Control, Inc., in his paper entitled "Pressure-Controlled Completions Are Not Necessarily High-Pressure Operations."

Continuing, Farmer stated: "Like many others, we had not taken into full consideration the various factors, such as the choking effect of the drill stem and the loading effects of the pumps, that make it normally possible to flow the drilling wells down to low surface pressures without necessarily maintaining a dangerously low bottom-hole pressure. The fact that it is normally possible to do this, and, by controlling the amount and gravity of the fluid circulated, to largely control the flowing pressure maintained on the sand during the drilling operation, takes completions under pressure control out of the hazardous class of oil field operations and places them among the more or less routine field operations."

He discussed pressure drilling operations in a number of Mid-Continent districts, stressing the use of low drilling-in pressures, which is something new to this type of work.

Several Production Problems

The next session of the engineers was devoted to important production problems, covered in several papers.

"Control of Water in Pumping Wells" was the subject of J. J. Zorichak of Stanolind Oil & Gas Company, Tulsa, who stated that the same fundamental physical laws that govern the behavior of fluids in flowing fields apply in pumping fields, although there has been a tendency to devote less thought to the control of water in pumping fields than in flowing fields. Zorichak summarized and reviewed the factors entering into the control of water production in pumping fields, and confined his remarks to fields in which hydrostatic energy was the principal expelling force and the reservoir was one intercommunication system. He stressed the point that the problem was one of keeping the oil and water separate as long as possible, while withdrawing the oil from the reservoir, and producing the maximum recoverable oil in the most efficient and economical manner. The least expensive producing program is that in which as little water as possible is produced, and while water production is being restricted, the body of water

Texas Suit Revived

STATE SUPREME COURT SETS OIL OUSTER HEARING

AUSTIN, TEXAS

THE Texas Supreme Court last week announced that it would review the $17,000,000 Allred anti-trust suit and set the case for submission before the court on October 28.

The suit was filed in December of 1931 by Allred at the time he was attorney general. All of the major oil companies retailing gasoline in Texas, two marketing associations and the American Petroleum Institute were named dependants in the suit. The defendants were charged with violating the anti-trust laws through marketing agreements governing the price of gasoline and filling station contracts. The lease and agency filling station contract used by most companies was alleged to be illegal.

Before the case came to trial, the attorneys for the oil companies presented arguments to show that the activity of the defendants operating through the "code of fair practices" was exactly the sort of operation that the National Industrial Recovery Act provided and that for this reason they could not be held guilty of violating the Texas anti-trust laws when they were specifically forced to operate in this manner under a federal statute.

Judge J. D. Moore in the Ninety-Eighth District Court, ruled with the oil companies and the case never went to trial on its merits. It was appealed, however, to the Third Court of Civil Appeals in Austin and after arguments, that court handed down an opinion affirming the decision of the trial court.

In that opinion, however, the higher court held that although the trial court judge had assigned improper reasons for its decision, it was correct because, as contended by the oil company attorneys, the marketing system used for gasoline was generally similar to that used for marketing farm products, and practices which had been authorized by Texas statute after the enactment of the anti-trust laws.

After the Appellate Court decision, the case was appealed to the State Supreme Court by Attorney General McCraw.

in the reservoir is being used as a piston to displace the oil from the reservoir.

These may be accomplished, at least partly, he pointed out, by permitting minimum penetration of the pay zone with the drilling bit, by eliminating or modifying potential tests and establishing uniform and comparatively low rates of withdrawals, and the maintenance of a uniform back-pressure at the face of the producing zone.

A progress report of a study of the sucker rod pump considered as a vibrating system with a degree of freedom, was given by J. F. Kendrick, Sullivan Machinery Company, under the title "The Sucker Rod Pump as a Problem in Elasticity." Dr. S. Timoshemke's formulae for defining such a system was given. Each factor was considered in respect to the problem of operating sucker rods.

"The controlling factors," the author asserted, "appears to be the ratio of the period of the natural vibration of the rod string to the period of the vibration of the pumping mechanism. The first conclusion is that a definite value of this ratio, which is below resonance and is probably 0.5, should not be exceeded in order to assure satisfactory performance from sucker rods. The second conclusion is that the component parts of the pumping equipment should be selected to give the smallest practical period of the natural vibration, and when this does not permit operation at a safe speed and give the required plunger displacement, a longer polished rod stroke should be used."

The next paper was one by Morris Muskat, Gulf Research Corporation, on the use of data on the build-up of the bottom-hole pressure or rise of the fluid level in pumping wells in determining the production capacity of the well and the reservoir pressure. Muskat was not present and the paper was read by R. D. Wycoff. In preparing a well for pumping, observations are often made of the fluid level in the well bore, or bottom-hole pressures at various times before equilibrium has set in. From a qualitative point of view one may immediately infer that if the rise in the bottom-hole pressure or fluid level is rapid the permeability of the sand about the well bore is large, and converse conclusions may be drawn if the rise is slow. However, a more quantitative estimate will give additional information of value, the author pointed out.

A paper on "The Productivity Index," by M. L. Haider, The Carter Oil Company, brought out much interesting discussion. The author compared the use of this method of production allocation with that existing in fields using the open flow potential procedure, as well as giving results of numerous tests. Some of those present thought this method could not be applied to such fields as the Mansion area of Oklahoma City, while others felt that it could with considerable advantage, although admittedly the method probably is not 100 percent perfect as yet. One member present suggested the elimination of any method that contained a potential factor, and the use of 2½-inch tubing and ¼-inch choke.

[*Continued on page 16*]

A. P. I. Meeting

VARIETY OF TOPICS LISTED ON PRELIMINARY PROGRAM

New York. — A comprehensive program, ranging from discussion of highly technical phases of petroleum production and refining to trends in business and economics, is being developed by the American Petroleum Institute for its 17th annual meeting scheduled for November 9 to 12, inclusive, in the Stevens Hotel at Chicago.

The preliminary program indicates that while the usual plan is being followed, with committee meetings on the opening day, committee meetings, general session and evening group sessions on Tuesday, group sessions, general session, and annual dinner on Wednesday, and final group sessions on Thursday, a wider variety of subjects will be considered. Several speakers have not as yet been finally selected, either for general or group sessions.

An attendance of close to 3000 oil men is expected at this annual forum of the industry. More than 100 offices, including that of Institute president and 45 memberships on the Board of Directors, are to be filled by election.

The Board of Councillors, which selects candidates for election to the directorate, already has been appointed, and candidates formally will be nominated at the board's first meeting November 10. Fifteen members of divisional general committees are to be appointed by the Board of Directors, and 60 additional members are to be elected by members of the Divisions of Production, Refining and Marketing.

It is expected that the final program will be completed soon. The preliminary program calls for the Board of Directors to meet Monday afternoon, Tuesday noon, and Wednesday morning.

Two general sessions are planned. All divisions are expected to take part at these meetings. The first general sessions will be Tuesday afternoon, when accident prevention certificate awards will be made, and the board of councillors will make its report, and officers will be elected. President Axtell J. Byles of the Institute will make his address at this time. Another speaker, as yet unnamed, will also be heard at this time. The second general session takes place Wednesday afternoon. The program and speakers for this are to be announced later. The annual dinner takes place Wednesday evening.

The Division of Production will devote Monday to various committee meetings. The first group session of the Division of Production will be held at 8 p.m. Tuesday, when the general subject will be "Materials," a program sponsored by the Central Committee on Drilling and Production Practice. C. W. Froome, Union Oil Company of California will preside at this meeting. A number of papers are under consideration for presentation at this meeting. Among these are: "Use of Vanadium Steels in Production Equipment"; "Use of Molybdenum Steels in Production Equipment"; and "The Relation of Mechanical Testing to Steel Performance."

The Division of Production will hold another group session Wednesday morning, when "Fundamental Research" will be considered. With G. V. D. Marx, Standard Oil Company of California, presiding the following papers are being considered: "Formation Volumes and Energy Characteristics of Gas-Gap Material from Kettleman Hills Field"; "Relationship between Organic Material in the Sediments and the Presence or Absence of Oil"; and "Present Status of Hypothesis of Biogenesis of Petroleum."

The general group session will discuss drilling practices, and is scheduled for Thursday morning. J. T. Hayward, Barnsdall Oil Company, will preside. Papers on the following subjects are under consideration: "Theoretical Determination of Collapse Strength of Casing"; "Testing Structural Silicon-Steel Members for Derricks"; and "Bottom-Hole Sampling and Analysis Apparatus."

At this session a report of the Division's nominating committee will be made, and 20 members to the general committee of the Division of Production will be made.

The final Division of Production group session will take place Thursday afternoon, with T. V. Moore, Humble Oil & Refining Company, presiding. Papers on the following subjects are being considered: "Flow Tests on West Texas Wells"; "Simultaneous Application of Surface and Sub-Surface Dynamometers"; "Determination of Porosity and Saturation"; and "Technique of Procuring and Handling Cores for Saturation Tests."

REED TO SPEAK

San Antonio geologists announce meet program

SAN ANTONIO

PRINCIPAL speaker at the eighth annual mid-year meeting of the San Antonio Geological Society, will be Ralph D Reed, President of the American Association of Petroleum Geologists.

The meeting and field trip is scheduled for October 16 to 18, inclusive.

Besides Reed, speakers will include Dr. F. B. Plummer of the bureau of economic geology at Austin, who will discuss "Geology of Maverick County;" A. R. Denison, geologist of Amerada Petroleum Corporation, who will talk on "The Pearsall field in Frio County;" M. G. Cheney of Coleman, whose topic is "The Migration of Oil;" and Dilworth Hager, who will describe "Recent Developments Along the Northeast Texas Fault Line." There also will be a discussion of some Claiborne problems by the field trip committee and others.

The tour will commence from the Hamilton Hotel at Laredo, Sunday and will proceed through Catarina to Carrizo Springs. A field trip covering parts of the Cretaceous and Tertiary sections of eastern Maverick County has been arranged for the last day of the three-day meet.

Stir Up More Laws

COMPACT CONFEREES FIND ICKES IRED AND GONE

WASHINGTON, Oct 10.

A NEW drive for the enactment of legislation giving the federal government control of the oil industry was foreseen here tonight following a conference between officials of the Bureau of Mines and representatives of the oil compact states.

The conference today climaxed the long-standing quarrel between Texas oil officials and the bureau, brought to a head when the Texas Railroad Commission fixed an October production figure 73,048 barrels in excess of the bureau's recommendation for daily output and Oklahoma countered with a request for a 50,000-barrel increase.

Determination to seek a "showdown" with the bureau was reached at a meeting of representatives of the oil compact states at Oklahoma City last week, after which Ernest O. Thompson, chairman of the Teaxs Railroad Commission, asked Secretary of the Interior Harold L. Ickes to arrange a conference "for the purpose of considering making a six months' forecase on the market demand for crude petroleum to the end that small producers may have a picture of market possibilities through the winter with the aim in view that employment may be kept on an even keel through the winter."

Thompson has long been a critic of the Bureau of Mines' estimates of market demand and has charged that they were not based on actual demand and were discriminatory against Texas when the allowable for that state is compared with the figures for New Mexico, Louisiana and Oklahoma.

Charges of discrimination were answered this week by Secretary Ickes, who declared that "the bureau's estimates are impartial" and criticised Texas' action in exceeding the bureau's October recommendation.

If all oil states exceeded the bureau's estimates there would be no chance for conservation of resources and stabilization of prices, he said, adding that "we are not playing favorites."

The conference today was attended by a number of officials of the Bureau of Mines and other branches of the department interested in the subject, but Secretary Ickes was not present, having departed to campaign for President Roosevelt.

That he would recommend to the President the enactment of legislation providing for federal control was indicated by the Secretary before he left Washington.

"I have never believed in compacts," he declared. "California, one of the three largest oil producing states, is not a member of the compact system."

Observers in Washington see in the difficulties of the compact states the opportunity that Secretary Ickes has been awaiting to revive his plan for federal control. Never a believer in this method of stabilizing the industry, he has lost no opportunity to criticise the plan since it was put into effect and has consistently held that failure of the compact would make a strong case for federal control.

Meanwhile, it was indicated, members of the oil compact are not unaware of the dangers of the situation, and it is expected they will attempt to counter Secretary Ickes' attack by asking Congress to extend the compact for a further period of two years.

With this alternative before it, it is hoped that Congress will withstand all pressure brought by the administration for enactment of federal control legislation, it being no secret that Secretary Ickes has more enemies than friends at the Capitol.

While his bills for federal control have been introduced in both Senate and House by members from the oil states in the past, it has been significant that they have not exerted themselves in support of the legislation and, in fact, the failure of the measures to receive consideration has been due largely to quiet opposition of oil state members among their colleagues.

Figures and other data in support of his suggestion for forecasts on a six-month basis were laid before Bureau of Mines officials October 9 by Thompson at a meeting in advance of the general discussion scheduled for the following day.

The new chairman of the States' Compact Commission explained that Texas already is prepared to adopt the plan, that it has been given the approval of the compact commission and that only cooperation of the bureau is needed.

"We will lay the program on a six-month basis before every operator, banker and investor in the state lending money on drilling, so that the amount of production needed may be known accurately," he declared. "Also, it will enable producers to regulate the drilling of new wells."

Thompson, discussing the situation following the meeting, again assailed the estimates of the bureau as not giving Texas its fair share of the market on the basis of the state's ability to produce. To meet the October recommendations, he explained, it would have been necessary to cut Texas production by some 73,000 barrels.

The state's opposition, he made it clear, is based on the fact that Texas has a potential production of 25,000,000 barrels, cutting the potential for the East Texas field to a one-hour run.

"Estimates prepared by the Bureau of Mines for August," he asserted, "gave Texas less than 5 percent of its potential. Oklahoma, on the other hand, was given about 25 percent of its potential figured at 2,500,000 barrels every 24 hours and New Mexico, with 2,678,000 barrels potential, is held down to less than 3 percent. In short, Texas does not think it is getting a fair proportion of the market, based on its ability to produce, under estimates prepared by the bureau.

"Moreover," the chairman of the Texas Railroad Commission added, "it is time to give consideration to whether we have reached the economic limit below which we should not further reduce storage stocks. For several weeks withdrawals from stocks have been 2,000,000 barrels a week, and last week the withdrawals were 3,000,000 barrels. It has become a question for serious consideration whether production curtailment has been and is too rapid.

"The tank storage," he pointed out, "is 221,000,000 barrels. Normally, 20,000,000 barrels are in pipe lines, so that at the present rate of withdrawals there is about 90 days' supply on top of the ground. This huge storage is owned by three or four large companies, and the element of the small producer enters into the equation. Some companies are hard pressed for Texas oil to fill their orders; The Pure Oil Company, for instance, has only 6 days' supply in Texas storage and in order to fill its needs without additional Texas production will have to buy oil in Ohio, Michigan and Louisiana. That is the record in face of the fact that Texas has a potential of about 25,000,000 barrels every 24 hours."

Answering Secretary Ickes' charges that the state compact has been a failure, Thompson asserted that on the contrary the agreement is working out excellently, with Texas, Oklahoma, Kansas, New Mexico, Illinois and Colorado already parties to the pact, while California sends representatives to every meeting of the states and expects to enter the agreement with other oil producing areas soon. Further, he pointed out, Indiana, Kentucky and Wyoming had representatives at the last meeting, at Oklahoma City, and expect to join as soon as the necessary legislation is enacted.

The compact is working so well, he declared, "That the threat of federal control of the oil industry is removed, notwithstanding intimations from the Secretary of the Interior."

TEXAS OUTPUT

August official report shows 1,166,370 daily

Austin, Texas.—Reports from the Oil Accounting Bureau of the Texas Railroad Commission indicate that the total production in Texas for the month of August was 36,157,478 barrels, an average of 1,166,370 barrels per day.

Production was 776,156 barrels or 2.1 percent less than the commission allowables. The allowable averaged 1,191,408 barrels per day.

The commission lists 64,802 producing wells, of which 25,986 were flowing and 38,816 were pumping. The report indicated 723 more wells producing in August than produced in July.

Storage increased 158,900 barrels to 4,172,958 barrels during the course of the month.

Producers reported runs of 35,625,644 barrels to pipe lines, 34,715 barrels by tank car, 177,727 barrels by truck, 32,766 barrels for fuel, and 24,384 barrels for miscellaneous uses.

Faltering in Crude Control Is Unsettling

RESULTS FAVORABLE IN SEPTEMBER BUT OUTLOOK IS LESS PROMISING

By L. J. LOGAN, Associate Editor

ALTHOUGH actual conditions so far have continued favorable, some recent developments in crude control have led to justifiable anxieties over the oil industry's immediate future.

The industry occupies a strong statistical position. But it is quite conceivable that present advantages might be largely annulled, if the current threat of a serious weakening of crude production curtailment should materialize.

Last Spring's Troubles Return

The present situation is very much like that of last spring, when the various leading oil producing states were suspicious of each other, and when each was afraid of losing its existing markets to the others. At that time the result was that most of the states began getting farther and farther away from the Bureau of Mines recommendations, and the national crude production became farther and farther out of balance with the indicated demand. There occurred, consequently, last spring a serious threat of a collapse of the market structures. Finally, realizing the seriousness of the situation, the oil conservation officials, the Interstate Oil Compact Commission, and the elements in the industry joined hands and temporarily ended the vicious circle that was creating the overproduction hazard. The states cooperated in holding production closely in line with the Bureau of Mines recommendations for several months thereafter, and the markets then were stable.

Control Efforts Weaker

Last spring's history has repeated itself only to a certain point, however. The vicious circle of ignoring the Bureau of Mines recommendations has arisen again. The mutual suspicions among the states have returned. But there has not been again a general realization of the dangers involved, or another huddling of the discordant elements for a cooperative program of restricting crude production.

United States Production

(Based on American Petroleum Institutt estimates, which do not include oil thae may have been surreptitiously produced.)

MONTH	Daily Average (Barrels)	Federal Estimate of Demand
January, 1934	2,233,505	2,183,000
February	2,239,070	2,183,000
March	2,339,950	2,282,800
April	2,420,950	2,366,200
May	2,575,380	2,366,200
June	2,588,100	2,528,300
July	2,560,550	2,530,300
August	2,475,300	2,449,300
September	2,431,950	2,341,700
October	2,364,150	2,325,800
November	2,375,400	2,340,300
December	2,414,600	*2,307,000 †2,460,300
January, 1935	2,500,850	2,460,300
February	2,521,250	2,526,100
March	2,568,800	2,520,300
April	2,559,750	2,527,300
May	2,601,350	2,561,200
June	2,695,100	2,651,000
July	2,707,150	2,660,000
August	2,676,250	2,600,600
September	2,737,750	2,613,000
October	2,780,850	2,554,200
November	2,825,900	2,563,700
December	2,826,850	2,540,200
January, 1936	2,818,300	2,559,200
February	2,774,450	2,648,100
March	2,828,750	2,738,900
April	2,914,600	2,797,300
May	2,976,053	2,826,300
June	2,953,908	2,838,300
July	2,950,522	2,917,200
August	3,029,550	2,936,900
September	3,020,308	2,864,000

* December 1-16.
† December 17-31.

During September the industry got farther away from the Bureau of Mines calculations of demand than in April or May. In October the excess is doomed to be even greater than in September. In November it is quite possible that the overproduction may go still higher. For at the beginning of that month, Oklahoma and Kansas may lose patience and join in the widening circle of states that are ignor-

United States Drilling and Production, September, 1936, and Cumulative for Year

STATE OR DISTRICT	MONTH OF SEPTEMBER, 1936						CUMULATIVE, JANUARY THROUGH SEPT., 1936					
	*Completions	Oil Wells	Gas Wells	Failures	Initial Prod-Bbls. Daily	Total Bbls. Oil Prod.	*Completions	Oil Wells	Gas Wells	Failures	Initial Prod-Bbls. Daily	Total Bbls. Oil Prod.
Arkansas	2	....	....	2	.....	843,200	72	16	2	54	6,089	8,099,500
California	100	64	1	35	34,502	17,287,200	848	582	12	254	289,084	161,182,150
Colorado	2	1	....	1	240	148,450	10	4	....	6	2,390	1,253,907
Eastern States	151	48	59	44	1,272	3,421,000	2,211	655	959	597	16,361	29,494,700
Illinois	....	....	....	....	.....	.....	4	....	4	....	.....	.....
Indiana	4	1	2	1	5	.....	147	26	52	69	783	.....
Kentucky	17	14	....	3	745	.....	208	133	7	68	8,282	.....
Ohio	99	27	36	36	478	.....	1,372	382	612	378	6,457	.....
West Virginia	31	6	21	4	44	.....	480	114	284	82	839	.....
Kansas	143	94	11	38	116,165	4,906,700	1,229	868	45	316	862,915	41,510,550
Louisiana	67	42	11	14	37,900	7,090,600	745	491	93	161	1,136,016	58,864,050
North Louisiana	36	22	10	4	26,438	2,431,700	427	277	85	65	1,009,480	19,534,450
South Louisiana	31	20	1	10	11,462	4,658,900	318	214	8	96	126,536	39,329,600
Michigan	68	23	19	26	3,268	902,750	581	249	157	175	41,665	9,400,050
Montana	29	21	2	6	1,774	523,900	128	98	12	18	9,694	4,098,300
New Mexico	44	40	1	3	31,075	2,369,850	424	390	11	23	691,715	18,834,350
Oklahoma	224	161	8	55	356,472	17,138,900	2,184	1,541	99	544	3,290,186	147,856,200
Southeastern States	....	....	....	....	.....	.....	9	....	....	9	.....	.....
Alabama	....	....	....	....	.....	.....	2	....	....	2	.....	.....
Florida	....	....	....	....	.....	.....	1	....	....	1	.....	.....
Mississippi	....	....	....	....	.....	.....	6	....	....	6	.....	.....
Texas	990	755	24	211	937,176	34,727,800	9,266	6,987	263	2,016	10,610,942	309,091,800
East Texas	187	172	....	15	636,248	13,055,100	2,247	2,110	3	134	7,517,565	119,680,700
East Central Texas	12	11	....	1	15,557	1,868,700	178	127	8	43	325,571	14,549,150
North Texas	161	90	....	71	19,350	1,831,350	1,615	880	6	729	109,820	16,123,550
South Texas	291	227	9	55	100,134	2,567,450	2,431	1,824	76	531	925,668	21,687,400
Texas Gulf Coast	109	72	3	34	30,528	7,604,650	865	613	27	225	257,548	65,834,350
Texas Panhandle	52	39	11	2	20,665	1,833,750	489	351	115	23	192,048	16,750,250
West Texas	139	124	....	15	112,365	5,157,350	1,093	932	11	150	1,271,210	47,455,400
West Central Texas	39	20	1	18	2,329	809,450	348	150	17	181	11,512	7,011,000
Wyoming	10	6	1	3	5,163	1,248,900	62	47	5	10	41,716	10,113,400
Total United States	1,830	1,255	137	438	1,525,007	90,609,250	17,769	11,928	1,658	4,183	16,998,773	799,798,957

* September completions cover not the calendar month, but the four weeks, or 28 days, ended September 26.

Excesses of Average Daily Crude Production Above Bureau of Mines Recommendations

(Barrels Daily)

MONTH	California	Kansas	Louisiana	New Mexico	Oklahoma	Texas	Other States	United States
March, 1936:								
Production	566,510	147,600	191,232	60,532	515,484	1,111,194	236,198	2,828,750
Demand	538,800	142,000	151,400	49,300	506,300	1,104,000	247,100	2,738,900
Excess	27,710	5,600	39,832	11,232	9,184	7,194	*10,902	89,850
April, 1936:								
Production	572,671	153,600	210,642	63,692	550,170	1,145,953	217,872	2,914,600
Demand	552,600	146,000	160,900	63,200	525,000	1,122,800	226,800	2,797,300
Excess	20,071	7,600	49,742	492	25,170	23,153	*8,928	117,300
May, 1936:								
Production	576,643	156,679	228,040	74,600	546,182	1,163,460	230,449	2,976,053
Demand	544,000	150,100	170,500	65,900	538,300	1,132,500	225,000	2,826,300
Excess	32,643	6,579	57,540	8,700	7,882	30,960	5,449	149,753
June, 1936:								
Production	578,240	145,922	222,427	73,033	549,765	1,152,873	231,648	2,953,908
Demand	535,500	153,100	175,700	68,300	552,500	1,125,700	227,500	2,838,300
Excess	42,740	*7,178	46,727	4,733	*2,735	27,173	4,148	115,608
July, 1936:								
Production	574,855	153,251	229,968	74,005	543,822	1,142,690	231,931	2,950,522
Demand	550,800	164,200	186,800	69,400	569,800	1,146,500	229,700	2,917,200
Excess	24,055	*10,949	43,168	4,605	*25,978	*3,810	2,231	33,322
August, 1936:								
Production	578,039	161,779	234,369	77,947	575,421	1,166,564	235,431	3,029,550
Demand	550,000	166,500	188,500	70,100	575,500	1,154,700	231,600	2,936,900
Excess	28,039	*4,721	45,869	7,847	*79	11,864	3,831	92,650
September, 1936:								
Production	576,240	163,557	236,353	78,995	571,297	1,157,593	236,273	3,020,308
Demand	535,200	160,000	186,200	71,600	563,000	1,123,900	224,100	2,864,000
Excess	41,040	3,557	50,153	7,395	8,297	33,693	12,173	156,308

* Under-production.

ing the Bureau of Mines recommendations. There could be little censure of Oklahoma and Kansas for taking such action, since the federal allocations have been regarded as scraps of paper by Louisiana, California, and more recently New Mexico and Texas. Such action by Oklahoma and Kansas, in turn, might encourage still greater excesses in the other states. Unless it is arrested, this general disregarding of the economic forecasts of the Bureau of Mines quite conceivably may lead to serious overproduction that would engulf the whole industry and all the states.

Problem Unsolved at Meeting

Before the meeting of the Interstate Oil Compact Commission at Oklahoma City October 2, it was expected that the session would bring into open controversy this matter of observing the federal allocations. But at the meeting the controversial problem was shunted into the background, apparently in the fear that a stilted but orderly meeting might be turned into a discordant parley. There was a careful avoidance of accusations by one state against another.

Just before the meeting, the Texas Railroad Commission had jumped over the Bureau of Mines traces, and the commission's chairman had asserted that Texas was not going to let Oklahoma encroach on its markets. And Oklahoma and Kansas oil men and oil officials promptly had bristled up and hinted at making reprisal by similarly scrapping the Bureau of Mines schedules. But at the Oklahoma City meeting there was no voicing of these accusations and challenges.

The nearest that the matter came to breaking into open consideration was in a speech recommending that the Interstate Oil Compact Commission look into the matter of crude production allowables. The speech was of such nature, however, that it did not fan the smouldering fire. The actions and policies of the states were not questioned. The only questioning was that of the Bureau of Mines recommendations. It was pointed out that the country's oil storage has been brought down to a comparatively low level, and it was suggested that possibly the stocks are as low as is economically desirable. If such is true, it was stated, then the Bureau of Mines should make its production recommendations higher.

Confer Over Allowables

In line with that suggestion, representatives of the Interstate Oil Compact Commission were scheduled to meet at Washington October 10 with representatives of the Bureau of Mines, for considering the storage situation and the future policies of the federal agency in calculating crude requirements.

At the time this is being written, therefore, the crude control problem still hangs in the air, under scrutiny, but not solved.

However, it is significant, and in the eyes of some, a matter for anxiety, that there is currently but little disposi- the states. Instead, there is now a disposition to condone excesses by the states and to solve the problems by jacking the Bureau of Mines allocations up to the state allowables, rather than by drawing the state allowables down to the federal quotas.

Proper Stocks Debatable

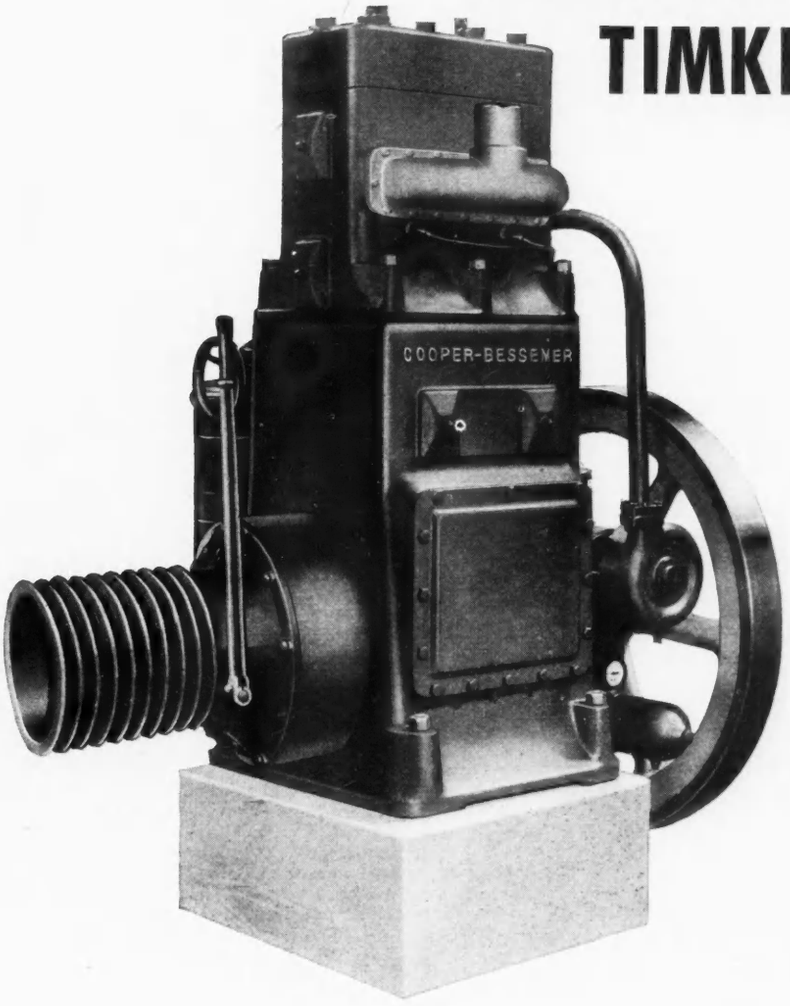
In this connection, it must be conceded, there is room for some debate, although the industry so far has not gone astray while following the advice of the Bureau of Mines.

In some quarters it is felt that the time has come at last when no further reductions of storage are needed. It is true that above ground stocks of all oils are the lowest for about 10 years, or since early 1927. It also is true that consumption is running this year at all time record levels, and that the demand now is much greater than in 1927. Bureau of Mines figures showed that at the end of July the total stocks of all oils represented only 161 days' supply, at current rates of consumption—the smallest supply, in relation to demand, since early 1921, or for 15 years. In view of these facts, there ap-

United States Drilling and Production in First Nine Months of 1936 and 1935

STATE OR DISTRICT	WELLS COMPLETED			BBLS. OF CRUDE PRODUCTION		
	In 1936 (9 Mos.)	In 1935 (9 Mos.)	Percent Change	In 1936 (9 Mos.)	In 1935 (9 Mos.)	Percent Change
Arkansas	72	102	—30	8,099,500	8,402,650	— 3
California	848	830	+ 2	161,182,157	146,359,013	+ 10
Colorado	10	8	+25	1,253,900	1,180,200	+ 6
Eastern States	2,211	1,833	+21	29,494,700	28,657,250	+ 3
Kansas	1,229	979	+26	41,510,550	39,672,750	+ 4
Louisiana	745	552	+35	58,864,050	35,546,800	+ 65
North Louisiana	427	233	+83	19,534,450	6,463,750	+202
South Louisiana	318	319	—½	39,329,600	29,083,050	+ 35
Michigan	581	391	+49	9,400,050	11,063,150	— 18
Montana	128	117	+ 9	4,098,300	3,104,700	+ 32
New Mexico	424	220	+93	18,834,350	13,942,300	+ 35
Oklahoma	2,184	1,696	+29	147,856,200	135,833,650	+ 9
Southeastern States	9	17	—47	.....	.....	.....
Texas	9,266	8,857	+ 5	309,071,800	281,405,700	+ 10
East Texas	2,247	3,454	—35	119,680,700	121,286,050	— 1½
East Central Texas	178	173	+ 3	14,549,150	13,540,700	+ 7
North Texas	1,615	1,637	— 1	16,123,550	15,845,200	+ 2
South Texas	2,431	1,397	+74	21,687,400	16,213,300	+ 34
Texas Gulf Coast	865	828	+ 4	65,834,350	49,669,050	+ 32
Texas Panhandle	489	483	+ 1	16,750,250	16,154,600	+ 4
West Texas	1,093	562	+95	47,455,400	41,726,750	+ 14
West Central Texas	348	323	+ 8	7,011,000	6,970,050	+ ½
Wyoming	62	52	+19	10,113,400	9,769,450	+ 3
Total United States	17,769	15,654	+13½	799,798,957	714,937,613	+ 12

THE COOPER-BESSEMER TYPE G-SD PUMPING ENGINE IS TIMKEN-EQUIPPED



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Cooper-Bessemer Type G-SD Vertical Twin-Cylinder 7½" x 9" Oil Field Pumping Engine, rated 40 H.P. at 400 R.P.M. Equipped with Timken Bearings on the crank shaft and pulley end of clutch shaft.

You will find Timken Bearings almost invariably associated with new developments in oil field equipment because of their unequalled performance record in the past. Equipment manufacturers who have had the longest experience with Timken Bearings are their strongest advocates.

This attitude is well-expressed by the Cooper-Bessemer Corporation in describing their new vertical pumping engine, Type G-SD: "Timken main roller bearings were chosen because years of experience in the oil fields have taught us that engines equipped with Timken Bearings start easier, require less 'down time' for bearing adjustments and show lower maintenance cost."

This applies with equal truth to every oil field engine equipped with Timken Bearings on the crank shaft no matter what type — steam, gas or Diesel, horizontal or vertical, single or twin cylinder. That includes all the leading makes. It pays to buy Timken-equipped.

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TIMKEN TAPERED ROLLER BEARINGS

Crude Oil Stocks

Bureau of Mines figures as compiled monthly, comprising all crude in storage in the United States.

At End of:	Total Barrels In Storage
January, 1934	353,642,000
February	531,641,000
March	354,067,000
April	354,350,000
May	355,883,000
June	357,239,000
July	355,260,000
August	350,838,000
September	348,937,000
October	346,415,000
November	341,165,000
December	337,254,000
January, 1935	338,174,000
February	337,319,000
March	339,139,000
April	339,793,000
May	338,559,000
June	334,757,000
July	329,351,000
August	324,966,000
September	320,705,000
October	317,155,000
November	315,558,000
December	314,631,000
January, 1936	313,081,000
February	310,812,000
March	313,189,000
April	315,389,000
May	315,169,000
June	311,046,000
July	306,390,000

Trend of stocks situation since end of July, figures being from weekly reports of Bureau of Mines.

August 29	301,786,000
September 5	300,788,000
September 12	298,448,000
September 19	297,950,000
September 26	294,568,000

pears at least some justification for those who feel the production allowables should be somewhat liberalized.

Furthermore, this feeling apparently is not confined altogether to the smaller producing companies. It is indicated that some of the larger companies would not be especially averse to ceasing withdrawals from storage or even to running some oil into storage in addition to supplying their current refinery requirements. If this attitude should be adopted by enough of the larger concerns, it would be assured that the markets could remain unimpaired in the face of stationary or possibly increasing storage.

On the other hand, it is felt in other quarters that the markets cannot remain stable unless the industry clings to the advantage that it now holds regarding oil in storage. Some of the major companies hold to the opinion it is not economically sound to put oil into above-ground storage, when it could be held until needed in the natural reservoir. Those companies consequently might be expected to balk at taking liberalized allowables, except at price concessions. If this attitude proved predominant, the contemplated additions to storage would bring the producers the desired higher allowables, but also would bring lower prices and possibly unchanged income.

Issue Raised by Texas

This matter of proper storage and proper allowables was pushed into the limelight late in September, when the Texas Railroad Commission expressed dissatisfaction with the Bureau of Mines recommendations, and for October fixed Texas allowables about 75,000 barrels daily above the federal allocation. Previously, the state had been adhering closely to the federal suggestions.

The developments in Texas naturally gave rise immediately to the danger that other states also would break away from the Bureau of Mines recommendations, and that there might occur a nation-wide breakdown of crude production control.

It remains to be seen what the ultimate outcome of the situation will be. But it is practically certain that the oil industry's results for October will not be as satisfactory as previously. The national balancing of supply and demand necessarily will suffer by the margin that Texas has lifted the ban on production. In the other states, allowables for October compare about the same as previously with the Bureau of Mines allocations. Oklahoma and Kansas so far have continued to stick close to the federal quotas, while Louisiana, California, and New Mexico, as in the past, have allowables substantially above the allocations.

Actual Conditions Good

As indicated previously, actual conditions in the industry have continued generally favorable, although the friction over crude control has been a decidedly unsettling factor. It is to be emphasized, also, that no repetition of the September results is to be expected for this month, in view of the increased crude production allowables in Texas.

Especially favorable in the statistics of the petroleum industry for September were the substantial reductions in the stocks of crude oil and gasoline, in the face of an increased excess of crude output over the Bureau of Mines recommendation. The large storage withdrawals in September indicated that consumer demand ran substantially higher than expectations.

Crude Stocks Decrease

The bureau's recommendation for 2,864,000 barrels of crude production daily was exceeded to the extent of 156,308 barrels daily, the greatest excess this year. Yet the surprisingly heavy consumption made it necessary to draw from storage about 7,000,000 barrels of crude oil, the greatest amount for many months. In August and July the withdrawals had amounted to about 5,000,000 barrels each month.

Gasoline Stocks Cut

This heavy withdrawal from crude storage in September occurred, moreover, without the influence of any abnormal activity at the refineries. The plants operated about as usual for the time of year, with runs held down sufficiently to permit the customary further reduction of gasoline inventories. The total stocks of finished and unfinished gasoline registered a net decrease of about 1,500,000 barrels during September. That was a slightly larger reduction than in September of last year. Meanwhile, the stocks of gas oil and fuel oil were increased about 1,500,000 barrels in September,

(*Continued on page 64*)

Wells Completed in the United States

(Including Oil Wells, Gas Wells, and Dry Holes)

MONTH	Daily Average
January, 1933	30.0
February	30.6
March	26.6
April	25.5
May	25.6
June	21.1
July	23.1
August	30.7
September	36.5
October	40.9
November	46.9
December	47.7
January, 1934	39.7
February	38.1
March	40.6
April	44.0
May	50.7
June	51.5
July	53.6
August	51.3
September	43.2
October	49.6
November	49.9
December	48.3
January, 1935	47.9
February	49.6
March	48.8
April	58.5
May	63.6
June	58.6
July	60.9
August	62.8
September	57.9
October	57.1
November	55.2
December	54.2
January, 1936	52.4
February	51.6
March	60.6
April	69.2
May	*71.9
June	70.9
July	66.6
August	70.4
September	65.4

*** Highest since July, 1930, when completions averaged 76.6 daily. Average dropped in August, 1930, to 52.4 and remained below that figure until July, 1934.**

Finished Gasoline Stocks

(Totals reported to the American Petroleum Institute, by companies owning about 90 percent of the country's refining capacity. Actual totals for nation must take into account the additional stocks not reported.)

DATE	Total Barrels Reported
September 29, 1934	43,850,000
October 27	41,993,000
November 17	*39,892,000
December 1	40,831,000
December 29	43,969,000
January 26, 1935	47,888,000
February 23	54,399,000
March 2	55,654,000
March 16	†57,406,000
March 30	56,388,000
April 27	55,097,000
June 1	53,180,000
June 29	50,007,000
July 27	48,157,000
August 31	43,787,000
September 28	42,976,000
October 26	41,163,000
November 9	*40,780,000
November 30	43,190,000
December 28	46,472,000
January 4, 1936	*47,288,000
January 25	50,368,000
February 1	52,831,000
February 29	60,881,000
March 21	†62,855,000
March 28	62,559,000
April 25	61,638,000
May 30	59,589,000
June 27	57,263,000
July 25	54,087,000
August 29	49,952,000
September 5	49,353,000
September 12	48,800,000
September 19	48,116,000
September 26	47,427,000
October 3	48,522,000

*** Low point of year.**
† High point of year.

'STARCOR' DID THE TRICK!

16-lb. Slurry, Down 6000 Ft. - - - and Only 800 lbs. Pump Pressure

SIXTEEN-POUND cement slurry easily pumpable in a well over 6000 ft. deep! That was 'STARCOR'S contribution to the successful shut-off of United Gas Company's Harris No. 3 at Rodessa.

There was 6002 feet of 7" O. D. casing in a 9⅞" hole. Circulation of 10.3-lb. mud started at 11:35 p.m., June 26th. Mud circulation stopped at 12:05, and the first of 1000 sacks of 'STARCOR' was dumped into the hopper. Seven tests with mud-weigher gave slurry weights ranging from 15.3 to 16.8 lbs., averaging 15.9 lbs.

Real Pumpability!

Cement pumps stopped at 12:51, the plug released and mud pumps started at 12:56 a.m. Mud circulation pressure was 700 lbs.; but, when the plug hit the collar and 'STARCOR' was in place, pump pressure was only 800 lbs. That's pumpability—15.9-lb. slurry down 6000 feet at a temperature of 195° F.—and only 800 lbs. pump pressure!

Three days later, on the night of June 29th, core was drilled out. Driller's report said it was the hardest cement he ever drilled and there weren't any soft spots.

What Cuttings Show

Chemical analyses of the cuttings were practically the same, item for item, as that of the original cement. How's that for freedom from mud contamination?

That's because 'STARCOR' is a true Portland cement, made without admixtures—specially designed for use in deep oil wells. Lone Star research chemists, who perfected 'Incor' 24-Hour Cement, tackled the problem of producing a cement to do these four things and do them well:

(1) Set slowly at high temperatures; (2) pump easily in a heavy slurry, and stay gel-like under all conditions so as to resist mud contamination; (3) develop high strength at early ages; and (4) give a long-life shut-off even in the presence of sulphate waters. In a word, an Oil Man's cement.

'STARCOR' is the answer. And performance in wells of many Texas and Louisiana producers has more than lived up to these basic requirements—well after well has come in safely and easily.

Use 'Starcor' Next Time

Your Lone Star and 'Incor'* cement dealer can get 'STARCOR' to you on short notice. Use a real Oil Man's cement—see it you don't agree that 'STARCOR'† is a step ahead. Made and sold by Lone Star Cement Company Texas, Dallas...Houston.

*Reg. U. S. Pat. Off. †Pat. Applied For

LONE STAR CEMENT COMPANY TEXAS

Makers of LONE STAR CEMENT • 'INCOR' 24-HOUR CEMENT • 'STARCOR' CEMENT

A.I.M.E. Meeting

[*Continued from page 9*]

F. B. Plummer and J. S. Woodward of the University of Texas had a paper entitled "Experiments on Flow of Fluids Through Sands." They discussed briefly the development of methods of measuring the permeability of sands, compared linear and radial measurements, pointed out special applications of radial permeability determinations, and described a new method of determining the permeability of unconsolidated sands. Their experiments showed that laws of radial flow can be successfully demonstrated by using small cores in a pressure cylinder. This permits the effect of various factors which influence production to be studied better. The most interesting observation in this paper was the demonstration of the effect of size of pore space on oil-water ratios, the effect of different pressure on oil-water ratios, and the effect of rate of production on oil-water ratios.

In a paper entitled "Estimation of Oil and Gas Reserves," R. L. Huntington of the Petroleum Engineering School of the University of Oklahoma, discussed how further applications might be made in the use of the material balance method of estimating reserves, the necessary precautions to be taken and the limitations of the accuracy of such calculations. The material balance method was developed in 1929 and makes it possible to determine the contents of a reservoir without having complete geological data. The method is based upon the fact that the contents of the original reservoir are equal to the fluid produced up to any time, plus the quantity remaining in the reservoir at that time. To carry out such calculations, pressure-volume-temperature relationships and solubility-shrinkage data on the reservoirs fluids have to be obtained along with statistics on the accumulated production of crude oil and gas over the various periods. Since 1929 several men have contributed much toward this type of study of reserve estimates. Such factors as water encroachment and the presence of an original gas cap should be considered, for under certain reservoir conditions these variables may affect the calculated results markedly.

Well spacing came into considerable attention Friday afternoon when two papers particularly stressed this factor. One was entitled "Diminishing Allowables Per Well" by W. E. Hubbard, Humble Oil & Refining Company, and the other was by D. T. MacRoberts, United Gas Company. Hubbard stated that the increase in new pools and number of wells were resulting in a downward trend of daily per-well allowables, particularly in Texas, and that for the producing industry to be established on a sound profitable basis a drastic decrease in the rate of drilling is necessary, or the industry will be confronted with permitting higher allowables and perhaps thereby suffering from price reductions, or the per-well allowables will become so small as to prohibit profitable return of capital over a proper period.

MacRoberts stressed the point that the spacing of gas wells was similar to that for oil wells. He spoke of one field where one well would drain within one percent of the recovery expected from spacing wells every acre.

Eugene A. Stephenson, Missouri School of Mines, spoke on "Acreage and Potential Factors in Allocation." He presented tables that showed the results of the application of the 50 percent acreage and 50 percent potential formula to an imaginary oil field during its development from 600 to 8000 acres.

One session of the meeting was partly devoted to the education of petroleum engineers and created much interest and discussion. W. W. Scott, Humble Oil & Refining Company; Professor L. S. Uren, University of California, and Dean R. L. Langenheim, University of Tulsa, were authors of papers presented at this time. They discussed the complex needs of petroleum engineers. Discussions brought out that some were in favor of increasing the requirements to five or six years of schooling for a petroleum engineering degree.

Status of steel and alloy steel tubing in oil refining heat exchanger practice was discussed by H. M. Wilten of The Texas Company, as the first paper during a metallurgical session. Another paper of this type was "A Method of Rendering Ferrous Metals Heat, Corrosion, and Wear Resistant by Impregnation With Silicon" by H. K. Ihrig, Globe Steel Tubes Company.

Capture Rule Changed

LOVEJOY POINTS OUT NEED NOW FOR RIGHT PRORATION

FORT WORTH, TEXAS

THE industry is reasonably well stabilized today because the rule of capture has been modified to a large degree and the difficulty now is the application of proration in the opinion of John M. Lovejoy, president of The American Institute of Mining and Metallurgical Engineers and also president of Seaboard Oil Company. He left this thought with members of the institute's Petroleum Section in addressing them at a noon day banquet here October 9.

He briefly stressed the changes in the rule of capture as existed several years ago and stated the industry is at some point between cooperative development stage and the rule of capture. The difficulty of proration application which is paramount today has two important problems Lovejoy pointed out. These are well spacing and gas-oil ratios. Close well spacing, the speaker stated, means diminishing allowables which mean smaller return of capital.

He thought the industry's own common sense would advance the idea if legislative laws are not passed to do so. The industry is facing declining allowables as it has more wells to prorate at the end of each year under present practices. In Lovejoy's opinion this will continue until a period is reached in which discoveries do not equal withdrawals and at present there is no indication that this time has arrived.

In speaking of gas oil ratios, he stressed the conservation of all energies that could be used to flow a larger percentage of the ultimate recovery. He discussed conditions at Kettleman Hills and Rodessa, where large gas caps are being depleted, and advocated the adoption of low gas-oil ratios and return of residue gas to the formations.

In conclusion, Lovejoy urged engineers to take more of a hand than in the past in order to solve these problems, and stressed the need and value of coordinated effort.

FILE GAS BRIEF

Texas waste decision before highest court

AUSTIN, TEXAS.

THE State of Texas has filed in the United States Supreme Court a brief in behalf of the Texas Railroad Commission in the suit against the Consolidated Gas Utilities Corporation and the Texoma Natural Gas Company.

The suit involves the validity of commission orders issued under the provisions of House Bill 266, the gas waste control bill, applying proration of gas in the Panhandle field.

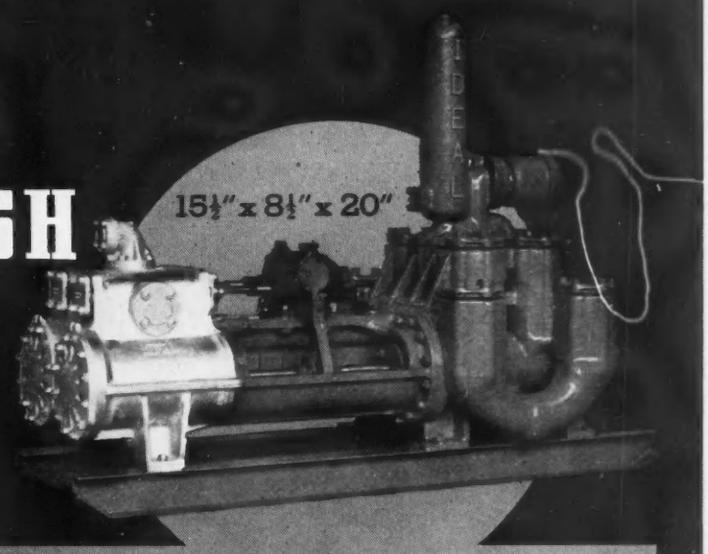
The two pipe line companies who are parties to the appeal filed suit immediately after the passage of the law and obtained injunctions against its enforcement as to them, and on final trial before a three-judge court in Houston these injunctions were made permanent, from which decision the state appealed.

The brief attacks the construction which is given to the statute by the lower court in holding that such statute does not empower the commission to restrict the amount of production for the purpose of protecting the correlative rights of land and lease owners in the field, and asserts that by the plain and express terms of the statute, the intent of the legislature was evidently to provide for a restriction of production and a distribution of the allowable among all producers in the field for the protection of correlative rights of all concerned, irrespective of the existence of waste.

IDEAL

"Reg. U. S. Pat. Off."

STEAM SLUSH PUMPS . .



Throughout the deeper drilling fields, these pumps are making remarkable records.

National's engineers have combined sturdy design with many advanced engineering features . . .

STREAMLINED WATER END

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LARGE VALVES

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IMPROVED STEAM END

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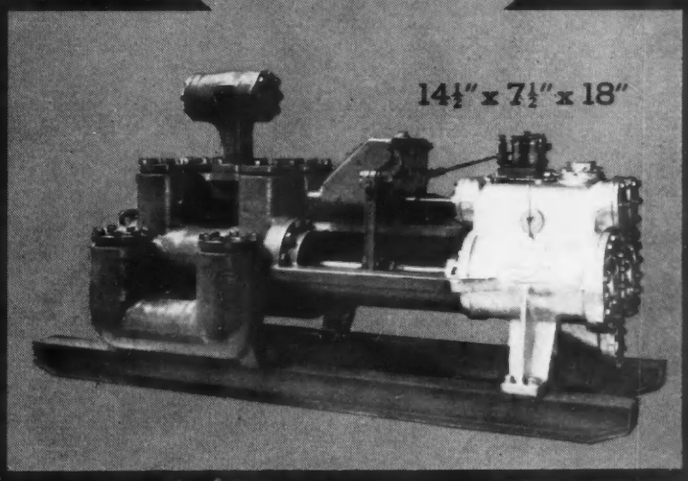
AUTOMATICALLY LUBRICATED, TOTALLY ENCLOSED, PATENTED, ROCK SHAFT STAND



Bulletins descriptive of Ideal Slush Pumps are available upon request.

THE NATIONAL SUPPLY COMPANY

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MEN IN THE INDUSTRY'S NEWS

H. K. V. TOMPKINS TAKES CHARGE OF DEVELOPMENT OPERATIONS EAST OF CALIFORNIA FOR PAUL GETTY'S COMPANIES

RESIGNS FROM CONTINENTAL OIL COMPANY TO REJOIN FORMER BUSINESS ASSOCIATES

H. K. V. TOMPKINS has resigned as manager of exploration east of the Rocky Mountains for Continental Oil Company to return to his former connection with J. Paul Getty, as vice president of the latter's companies in charge of development operations east of California.

Tompkins was introduced to the oil business in September, 1917, when he joined Gulf Oil Corporation at Houston. A year later he was made chief engineer in charge of all engineering throughout the Southwest for Gulf Pipe Line Company. In January, 1921. Tompkins went to Mexico as an executive of Mexican-Gulf Oil Company. He returned to Houston in January, 1929, as an assistant to the vice president in charge of Gulf Oil Corporation's activities in the Southwest. In March, 1932, he became personal representative for J. Paul Getty, and was in charge of the work of merging several production companies into one unit. He remained with Getty until joining Continental Oil Company.

H. K. V. TOMPKINS

H. E. GROSS, petroleum engineer in the exploitation department for Shell Petroleum Corporation in Tulsa for the past three years, resigned October 1, to accept a position on the faculty of the School of Petroleum Engineering, University of Oklahoma at Norman. Gross has been engaged in the oil industry since 1931. A native of Missouri, he pursued his undergraduate studies at Missouri School of Mines and Metallurgy, Rolla. He was granted a B.S. degree in 1928. He studied engineering at the University of Illinois and in 1933 received his Masters degree there. In 1934 he received his Professional degree from Missouri School of Mines. He is a member of Tau Beta Pi, honorary engineering fraternity, also a member of the A.I.M.M.E., and the American Association of Petroleum Geologists.

J. LEWIS FOSTER, partner with his father in Foster Cathead Company, successors to Hill & Foster, has moved to Houston, where he will make his headquarters during the introduction of new items manufactured by the company. Mr. and Mrs. Foster will reside at 1204 Bartlett Street.

BOB JEANS, with Humble Oil & Refining Company, Houston, is spending two weeks on vacation.

HARRY LEYENDECKER, chief scout for Tide Water Oil Company, Houston, is vacationing in Fort Worth.

LEAVITT CORNING, JR., geologist and magnetometer operator of San Antonio, Texas, has returned to that city after vacationing in Old Lyne, Connecticut.

EDWARD H. MOORE, independent producer of Tulsa, accepted the chairmanship of the 1937 Community Fund Campaign, October 3, according to Elmo Thompson, committee chairman. Moore, president of E. H. Moore, Inc., has taken an active part in the recent fight for increased oil allowables. He is also the discoverer of the Fitts field of Pontotoc County.

T. H. BARTON, president of Lion Oil Refining Company, recently was named state chairman of the 1936 Christmas Seal Campaign, sponsored annually by the Arkansas Tuberculosis Association.

S. W. LOMAN was the speaker at the Houston Geological Society's weekly meeting October 8. He discussed the differences in the Mid-Continent and Gulf Coast sub-surface laboratory methods.

JOHN GEISMAR, general manager of the National Supply Company, who has been ill in the Toledo Hospital, at Toledo, Ohio, was reported to be improving this week.

E. R. BROWN, chairman of the board of Magnolia Petroleum Company, will return to his home at Dallas about October 20 after being absent since early last June on a European vacation trip. He returned from abroad late in September, and is now in New York.

EDWARD V. O'ROURKE has spent the summer with the Production Department of the Phillips Petroleum Company, Bartlesville, Oklahoma. He has now returned to Ohio State University where he is Associate Professor of Mining and Petroleum Engineering.

J. K. CULTON, Corpus Christi oil operator, was named a director of Republic Natural Gas Company at the first annual stockholders meeting held in Corpus Christi October 5. Tom Graham, also of Corpus Christi, was re-elected to the board. Other directors elected at the meeting included W. H. Wildes of Chicago, president of the company; Wood W. Turner of Chicago; William J. Morris of Dallas, president of Continental Supply Company, and Fred Mayer of Dallas, vice president of Continental Supply Company.

RALPH COOLEY, representative for Sloan and Zook Company, Midland office, was married to Miss Billie Black of Bradford, Pennsylvania, on October 5.

DIED:

JOSEPH H. EVANS, pioneer Tulsa oil man and founder of the Devonian Oil Company, dropped dead at his home here late Saturday, October 3, following a three-day illness. Familiar to oil men in the vicinity as Uncle Joe, Evans was 86 years old, and was born in President, Pennsylvania, just eight years before the Drake well was completed, some fifteen miles from the city. He began business with the Devonian company in Bartlesville in 1903, but made Tulsa his home from that time until his death. He was elected "Grand Old Man of the Oil Industry" at one of the earlier oil expositions in Tulsa. Evans is survived by one daughter, Mrs. Morris Herkness of Rydal, Pennsylvania, and two grandchildren there. Another granddaughter, Miss Louise Evans of Santa Monica, California, was in Tulsa at the time of his death.

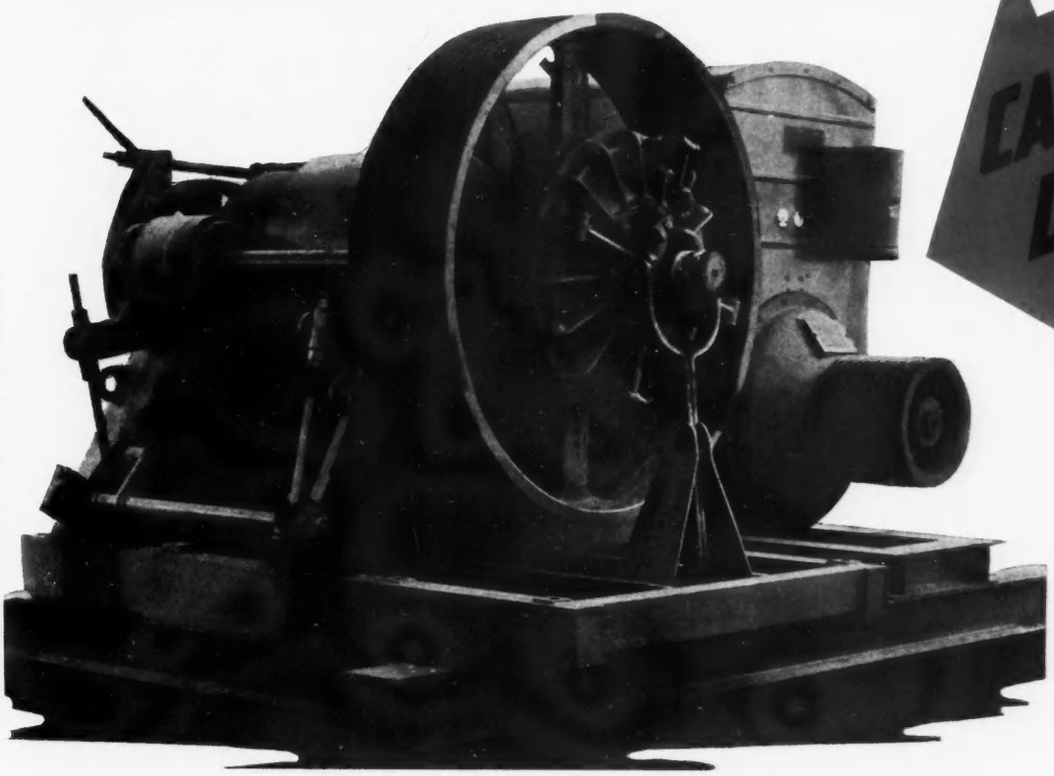
CHARLES F. BISETT, 73, independent oil producer of Tulsa, and a resident of the city for the past 26 years, died October 6 in a Tulsa hospital after several weeks' illness. Born on an oil lease in Bradford, Pennsylvania, in March, 1863, Bisett went to work for his father when he was 10 years old, and has been in the oil business ever since. He came to Oklahoma in 1910 to work with the Crawford brothers at Muskogee, and later moved to Tulsa as Oklahoma manager of Eastern Oil Company, of Buffalo, New York. He is survived by the widow, two daughters, Anna and Lillian, both of Tulsa; two sons, Charles F. Bisett, Tulsa, and Donald Bisett of Drumright.

EARL W. TICKNOR, 40, West Texas superintendent for Magnolia Pipe Line Company, died September 30 at a Midland hospital following an operation for appendicitis. He had served the company about 10½ years, and was active in civic affairs at Midland.

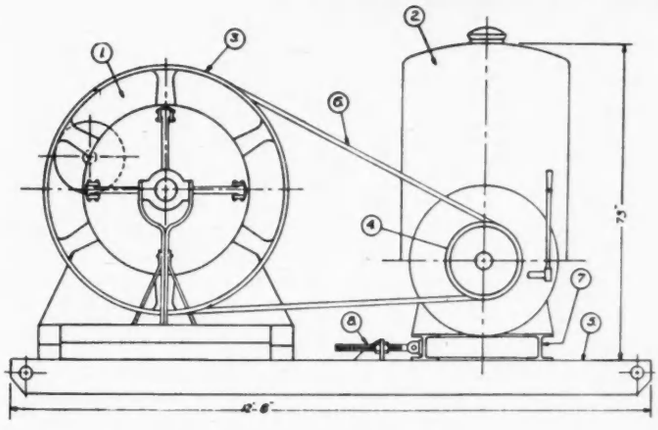
W. H. STARK, president of the Vinton Petroleum Company, Grey Oil Company, and Capitol Oil Company, died at his home in Orange, Texas, October 9. He was 85 years old and a heart ailment was the cause of his death. He was best known as a lumberman, having headed large lumber and land interests at Orange.

BRIDGEPORT

CABLE TOOL DRILLING UNIT



• FLEXIBLE - ECONOMICAL - CONVENIENT



- 1—O. C. S., Type F. C. Counter Shaft Clutch with Clam Shell Brake and Steel Clutch Base.
- 2—Model WOKU Waukesha Power Unit complete with No. 9693G Clutch Power Take-Off.
- 3—56" 10-Groove D-Section Texrope Sheave.
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- 5—Bridgeport Sub-Base No. V-499-A.
- 6—10 D-270 Texropes.
- 7—Bridgeport Engine Sub-Base No. V-500-A.
- 8—Adjusting Screws No. V-502-A for Engine Sub-Base.

Combining the flexibility and ease of operation of the steam rig with the many advantages and economies of the mechanical rig, this Unit reduces the costs of cable tool operations by reducing fuel costs, water requirements, rigging-up expense, and moving costs.

Designed for drilling from top to bottom in any cable tool territory to depths of 5,000 feet; for drilling-in after rotary; and for deepening and cleaning out operations.

For complete specifications and full details, write for Bulletin No. 80, or telephone our nearest representative.

These Units are carried in stock, ready for immediate delivery anywhere.

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TULSA . OKLAHOMA CITY . WICHITA . NEW YORK CITY . AND BRANCH STORES

Silsbee Wild Well Extinguished

GREATER DEPTH AND DISTANCE OF RELIEF WELL PRESENTED PROBLEM

By DENIS S. SNEIGR

ON October 2, at 1:30 a.m., the wild gasser near Silsbee in Hardin County, Texas, which had been burning for 59 days, was extinguished and the flow of oil and gas stopped by water pumped through the directional relief well.

This wild well, Houston Oil Company and Republic Production Company's Brooks 1, blew out August 5, and two days later ignited. Efforts to extinguish the blazing crater with steam failed, and about a week later a directional relief well was started.

By this time the situation had become more acute. The well was making some oil as well as a large quantity of gas, and the crater had widened. But aside from these hazards, the situation presented a more difficult engineering problem than had either of the three previous relief holes drilled by the directional hole contractors.

In the first place, the depth of the Brooks 1 is much greater than was the depth of either of the three other wells for which relief holes have been drilled. This greater depth, together with the intense heat and increasing size of the crater, naturally necessitated the location of the relief well farther away from the crater than was the case for the other wells. On the Rumanian job, drilled about a year and a half ago, the distance between the location of the relief well and the wild well was 453 feet. On the wild well near Falfurrias, Texas, the distance between the two locations was 386 feet, and on the Conroe crater, the distance was 412 feet between the two locations.

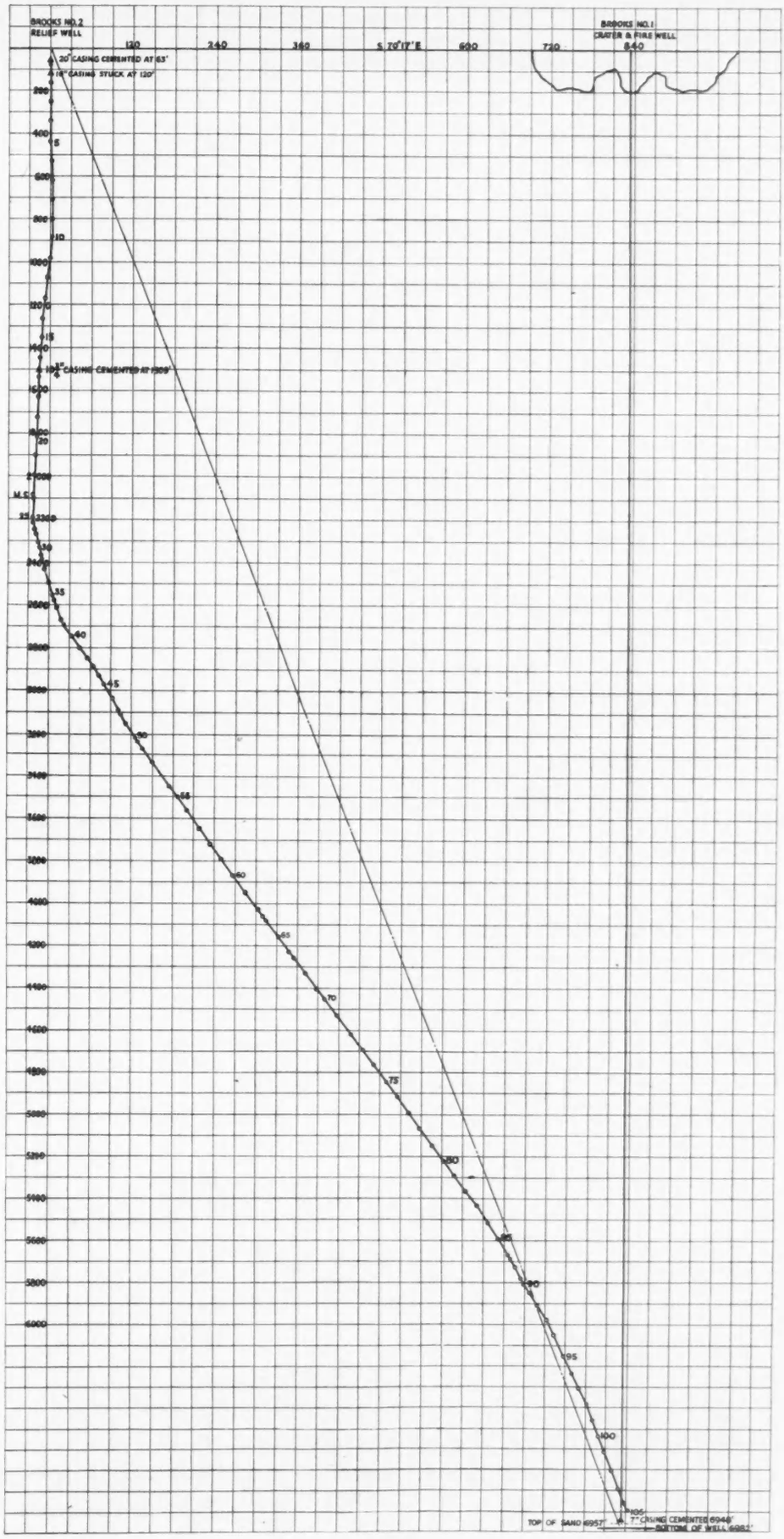
On the Silsbee crater, the relief well was located 836 feet away from the burning well, almost twice as far as the greatest distance on any of the previous relief jobs. Also, there is a striking difference in the

TABLE 1

Casing and Survey Record of Directional Well

63 Feet	20" casing set
120 Feet	16" casing set
1509 Feet	10¾" O. D. casing set, 1200 sacks cement used.
2099 Feet	Directional survey.
2096 Feet	Coordinates were 13.58 South by 28.06 West.
2191 Feet	Directional survey—1° 10′ South by 54° West.—Set first whipstock.
2210 Feet	Directional survey—3° 50′ South by 28° East.
2251 Feet	Deflector tool set.
2307 Feet	Directional survey—3° 50′ South by 39° East.—Set whipstock
2326 Feet	Directional survey—4° South by 49° East.
2367 Feet	Directional survey—5° South by 63° East.—Set whipstock.
2555 Feet	Directional survey—5° 20′ North by 76° East.—Set whipstock.
2614 Feet	Directional survey—8° 20′ South by 81° East.
2675 Feet	Directional survey—7° 15′ South by 82° East.—Set whipstock.
2694 Feet	Directional survey—10° 5′ South by 62° East.
3100 Feet	Directional survey—11° 5′ South by 62° East.—Set whipstock.
3119 Feet	Directional survey—10° 30′ South by 70° East.
3226 Feet	Directional survey—9° 15′ South by 72° East.—Set whipstock.
3245 Feet	Directional survey—10° South by 77° East.

The relief well was located 386 feet from the burning cratered well at Silsbee.



Vertical projection of Brooks 2, directionally drilled relief well at Silsbee.

(Courtesy Eastman Oil Well Survey Company.)

depth of Brooks 1 and the depths of the three other wells. Brooks 1 has a depth of 6982 feet. Seven-inch O.D. casing was set at 6948 feet, with the top of the sand at 6957 feet. On the Conroe job, the depth of the wild well was 5094 feet; Seeligson 1, near Falfurrias, was only 2405 feet deep, and the Rumanian well, Sonda 5, was 2507 feet deep.

Besides the greater depth of Brooks 1, and the greater distance between the two locations, two other factors were present which complicated matters still further for the engineers. Brooks 1 had not been surveyed below 5600 feet when drilled, and thus the location of the bottom of the hole was unknown. It was necessary to estimate the location of the bottom of the hole. Under these conditions, the engineers in charge of the relief well were working "blind" in that they were shooting at a figurative target. However, as it turned out, the relief well penetrated to within a few feet of the bottom of the burning well.

The other factor expected to give trouble was the upper formations. In this area, the formations near the surface are soft sands and clays, and it was feared that the drill stem might stick. On Brooks 1, the drill stem stuck twice and this well was drilled comparatively straight. The relief well, Brooks 2, was necessarily curved, and for this reason it was felt that some difficulty might be experienced. However, through close supervision by the engineers and careful drilling, no such trouble was experienced.

Table 1 is a casing and survey record of the relief well from 63 feet to 3245 feet, in which interval seven of the nine whipstocks used were set.

From 3226 feet, where the seventh whipstock was set, the well drilled ahead with numerous surveys, but without the use of any more whipstocks until 5736 feet where another whipstock was set. At 5858 feet, the ninth and final whipstock was set. These last whipstocks were set to turn the hole to the left, to counteract a strong right-hand structural tendency.

Seven-inch casing was set at 7024 feet, the measured depth, and when all was in readiness, clear water was pumped through the relief well. This is the first time that water has been used exclusively. On the other relief wells, very thin mud was used. Water was pumped into the Brooks 2 from 7:30 a.m. until 1:30 a.m.

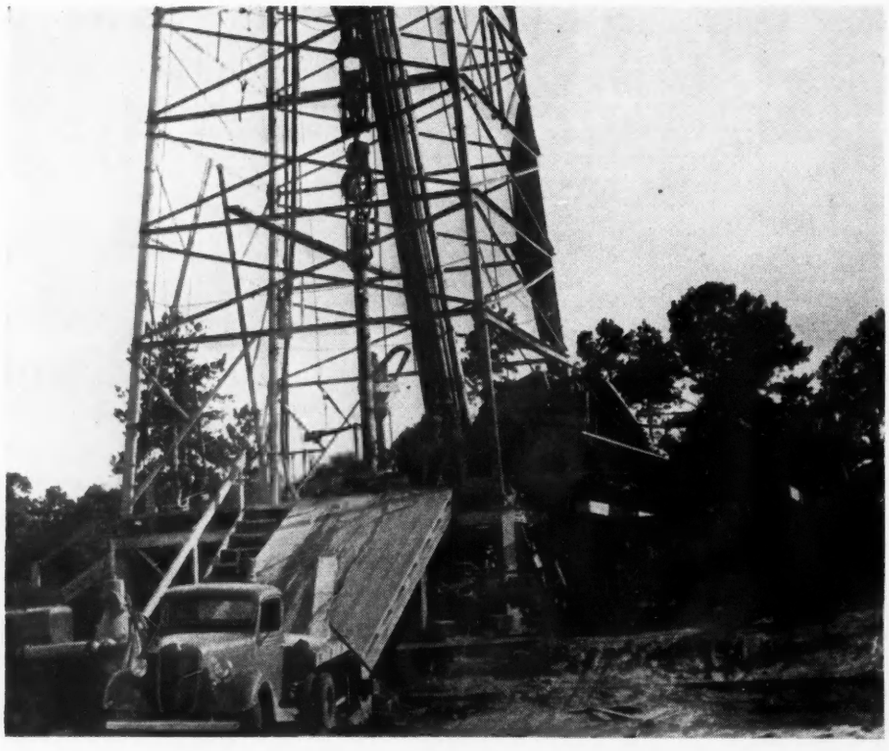
When the fire had been extinguished, the crater was inspected and found to be dry. It is supposed that in time, surface water will seep into the crater and eventually fill it, but shortly after the wild well was killed, the crater was dry. A cone, similar to a volcanic cone, had been formed at the bottom of the pit, but there was no sign of the derrick, drilling equipment or two strings of drill pipe.

Another unusual feature in connection with the killing of this wild well is that the relief well will be completed as a producer without any further drilling operations. After waiting until it is definitely known that a permanently effective cement job has been done at the bottom of the Brooks 1, the relief well will be completed as a regular well.

TABLE 2

Drilling Time of Directional Well

Total hole drilled	4928 feet (2096 to 7024).
Total time	28 days.
Average footage per day	176 feet.
Average footage per hour	7.3 feet.
Total round trips	71
Total time required	186.5 hours.
Average time per trip	2.62 hours.
Total round trips whipstocking	10 (including deflector tool).
Total time	46.5 hours (including drilling).
Average time per whipstock	4 hours 40 minutes.
Total time rigging up whipstock	10 hours.
Average time per whipstock	1 hour.
Total directional survey runs	60.
Average time per run	34.5 minutes.
Total directional readings	81 (two readings on some trips).
Average time per reading	26 minutes.
Total trips reaming (pilot bit following whipstock	9.
Total time required	29.5 hours (including reaming and circulating).
Average time per run	3 hours.
Time spent circulating (other than after reaming with pilot bit)	45 hours.



Close-up of the rig used to drill the directional hole at Silsbee.

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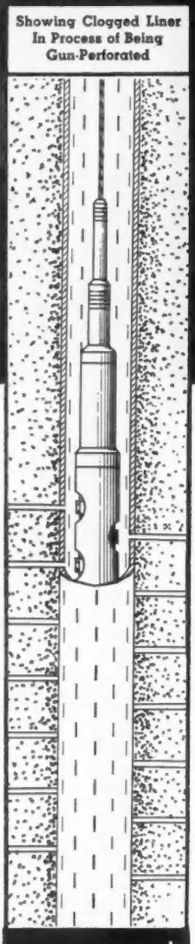

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Proceedings A. I. M. E. Petroleum Division
Fort Worth Meeting, October 8-9, 1936

Estimation of Oil and Gas Reserves

By R. L. HUNTINGTON, Member A.I.M.E.
Petroleum Engineering School,
University of Oklahoma, Norman, Oklahoma

FOR a number of years the sand volume-saturation method has been used as a means of estimating the quantities of crude oil and gas present in underground reservoirs. This method has given satisfactory results only in fields where the geological data are sufficiently complete to define the limits of the pool. In 1929, Coleman, Wilde and Moore[1] developed a method that makes it possible to determine the contents of a reservoir based on a material balance; that is, the contents of the original reservoir are equal to the fluid produced up to any time plus the quantity remaining in the reservoir at that time. To carry out such calculations, pressure-volume-temperature relationships and solubility-shrinkage data on the reservoir fluids had to be obtained along with statistics on the accumulated production of the crude oil and gas over the various periods. Ben E. Lindsly[3] contributed much toward this phase of the work through the analysis of bottom-hole fluids from several major oil fields. Schilthius[5] has recently estimated the initial fluid content of the Conroe field in a quantitative manner through the study of such factors as water encroachment, the presence of a gas cap and "active" oil. Katz[2] has made calculations on the Wilcox sand of the Oklahoma City field and has obtained consistent results based on oil and gas production data covering a four-year period. This new method of estimating the size of crude oil-gas reservoirs is particularly adapted to fields in which the limits of the producing zone have not been defined by the drill. In well defined fields where confidence has been placed in the sand volume-saturation method, the material balance as originated by Coleman[1] and his co-workers may also well serve as a check on the former plan of making calculations. The purpose of this paper is to show how further applications may be made in the use of the material balance as well as the necessary precautions to be taken and the limitations of the accuracy of such calculations.

This new principle can be applied to the calculation of gas reserves. In applying the material balance, it may be stated that the amount of gas originally present in a gas reservoir is equal to the amount produced up to any date plus the amount remaining in the reservoir on that date. In the absence of sand volume-porosity data for a reservoir in which no oil is present, the method of determining the original amount of gas can be illustrated by the following hypothetical case:

	Pressure	Temp.	Compressibility Factor = $\frac{PV}{RT}$
Original Reservoir Conditions	2000	125°F.	0.85
Average Reservoir Conditions at time Θ	1200	123°F.	0.88

Cubic feet of gas produced up to time Θ = 50 billion cubic feet measured at standard conditions. Assume further that during the production of the gas one-tenth of the original reservoir was flooded through water encroachment. Let V equal the number of cubic feet of original pore space filled with gas at initial reservoir conditions and of a composition comparable to 90 percent methane and 10 percent propane. The compressibility factors were taken from original data published by Sage, Lacey and Schaafsma.[4]

Solution:

Standard cu. ft. of gas at 14.7 lb. per sq. in abs. and 60°F. Original gas reserve=produced gas+gas remaining in reservoir.

$$V \times \frac{2000}{14.7} \times \frac{520}{585} \times \frac{1}{0.85} = 50 \text{ billion} + 0.9\,V \times \frac{1200}{14.7} \times \frac{520}{583} \times \frac{1}{0.88}$$

$142.3V = 105$ billion, original gas in reservoir

$105 - 50 = 55$ billion, gas remaining in reservoir.

In this particular problem it happens that the corrections for temperature and compressibility tend to offset each other.

Assume that a reservoir that has been producing both oil and gas is now under a pressure of 1000 pounds per square inch, and that its crude oil, which occupies 75 percent of the pore space, is in equilibrium with the gas cap, which fills the remaining 25 percent of the voids. If the field were shut in, and edge water permitted to encroach sufficiently to fill 10 percent of the original pore space occupied by the crude oil and gas, what pressure would be developed in the reservoir?

Data and Assumptions—Referring to Lindsly's data[3], it is found that for an average Mid-Continent crude oil about 23 cubic feet of gas go into solution per barrel of residual crude oil for every 100 pounds increase in pressure throughout the range of 500 to 2000 pounds per square inch. The 23 cubic feet of dissolved gas occupy a space of 0.0535 cubic feet in the

crude oil. It is assumed that 750,000,000 barrels of liquid are in the reservoir, of which 625,000,000 barrels are residual crude oil. Assume further that equilibrium exists between the oil and gas at all times.

Solutions—Since a part of the gas goes into solution as the crude oil is forced into the gas-cap space, the increase in pressure is not directly proportional to the volume of the intruded water. Let V equal the volume in millions of barrels of the original pore space occupied by the oil and gas, or one billion barrels = 5.62 billion cubic feet. The volume of the gas cap before water-flooding would, therefore, be equal to 1.405 billion cubic feet. Let Z equal the number of 100-pound increments in pressure due to water-flooding. The net shrinkage of the gas-cap gas would be equal to the volume of the gas-cap gas that goes into solution under reservoir conditions, less the increase in the volume of liquid due to the solution of the gas into the crude oil. In order to estimate the volume of gas-cap gas going into solution, it is necessary to resort to successive approximation.

Trial 1

Assume the final pressure on the reservoir to be 1250 pounds per square inch absolute. The net shrinkage of the gas cap in cubic feet due to the solution of the gas into the crude oil will, therefore, be:

$$\left(23 \times \frac{14.7}{\frac{1000 + 1250}{2}} - 0.0535\right) 625 \times 10^6 Z$$

(neglecting any change in the compressibility factors of the gas in the pressure range, 1000 to 1250 lbs. per sq. inch.) $= 154 \times 10^6 Z$

The final pressure on the reservoir can be expressed in two ways. On the left-hand side of the equation 1 (below), it is seen that the final pressure equals the initial pressure plus the number of 100 pound increments of pressure. On the right-hand side, the final pressure is equal to the pressure that would have been exerted had the gas been comprssed from 25 volumes to 15 volumes; i.e., 10 percent of the total voids corrected for the factor $\frac{(1405-154Z)}{(1405)}$ the fractional size of the new gas cap compared to that of the original, due to the effect of solution alone.

$$1000 + 100Z = 1000 \times \frac{25}{15} \times \frac{1405-154Z}{1405} \qquad (1)$$

$Z = 2.34$

P_2 (the final pressure $1000 + 100\ (2.34) = 1234$ lb. per sq. in.

The second approximation would give a pressure between 1234 and 1250, probably nearer the former pressure.

Trial 2

$$\text{Gas-cap shrinkage} = \left(23 \times \frac{14.7}{\frac{1000+1234}{2}} - 0.0535\right) 625 \times 10^6 Z = 158.5Z$$

$$1000 + 100Z = 1000 \times \frac{25}{15} \times \frac{1405-158.5Z}{1405}$$

$Z = 2.35 \qquad P_2 = 1000 + 2.35\ (100) = 1235$

Therefore, the final pressure would equal 1235 pounds per square inch provided equilibrium was maintained between the encroaching oil and gas that was being compressed in the gas cap. In an actual case the rate of diffusion of the gas into the oil would be so slow that it is unlikely that any appreciable rate of water encroachment would keep the oil in a saturated state with respect to the gas in the gas cap.

If no edge-water drive takes place, it is reasonable to assume that the oil-gas pore space will remain substantially constant throughout the life of the field. Whenever a series of calculations, over a long period are made on a reservoir, and the results show approximately the same initial fluid content regardless of the year the data are obtained, the indications point toward the absence of water encroachment. However, in the event that the undrilled portion of a reservoir is connected to the developed sections through a narrow neck or a cross section of sand of low permeability, the calculations will be in error since the average bottom hole pressure in the proven area will not represent the average pressure over the field as a whole. If water were flooding the proven area of such a field, calculations would not reflect this encroachment since the increase in pressure, due to the approach of water would be offset by the lag in the equalization of gas pressure from the undeveloped portion of the reservoir. Should water encroachment not be taken into consideration in a field where there is an equal distribution of gas pressure, the calculated initial contents would, of course, increase with time. Vice versa it would be expected that the initial fluid content would fall off if corrections were made for water displacement. These corrections will have marked effect on the size of the estimated reservoirs, if they are made in the early life of the field when the bottom hole pressures are relatively high. Figure 1 shows the great divergence in the effect of such corrections for water encroachment based on a reservoir that was assumed to have one billion barrels of initial fluid.

An example will best illustrate the steps taken

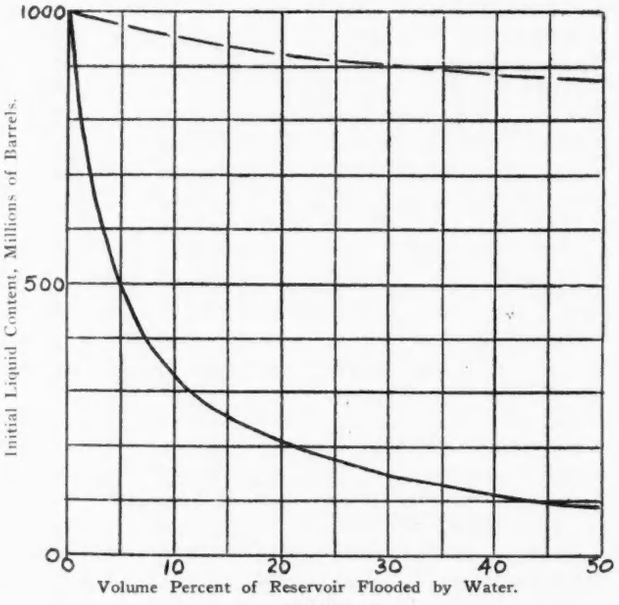

FIGURE 1

Effect of Water Encroachment on Estimated Liquid Content of Reservoir, in which no original gas cap is present and crude oil is saturated with gas.

Lower curve, early date, 2000 lb. average bottom-hole pressure. Upper curve, late date, 400 lb. average bottom-hole pressure. At discovery, average bottom-hole pressure was 2600 lbs.

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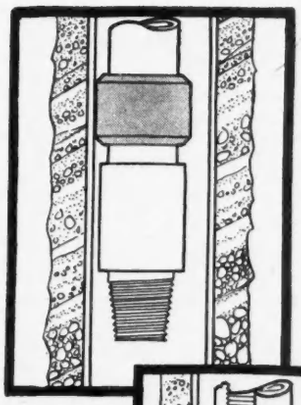
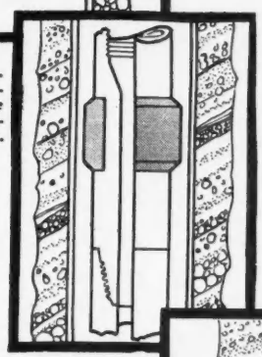
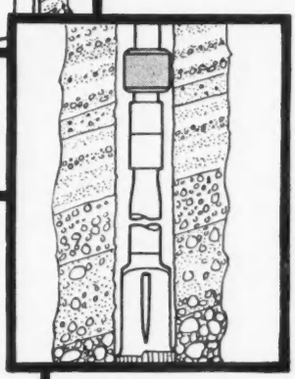


Patterson-Ballagh Protector on drill pipe to prevent contact with casing.

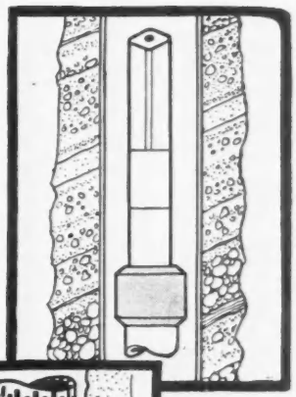


Patterson-Ballagh Protector on Hopkins Anti-friction Tool Joint.

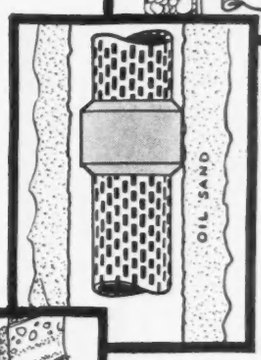


Left: P-B Drill Stabilizer on drill stem.

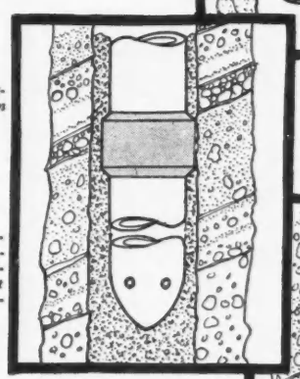
Right: Patterson-Ballagh Protector on casing in cement job to prevent thin walls.

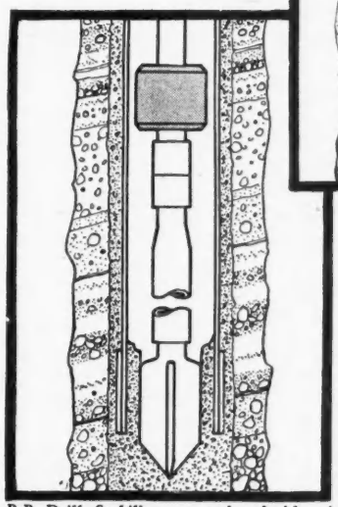


Patterson-Ballagh Protector on Kelly sub to prevent whipping or collapse of stovepipe.



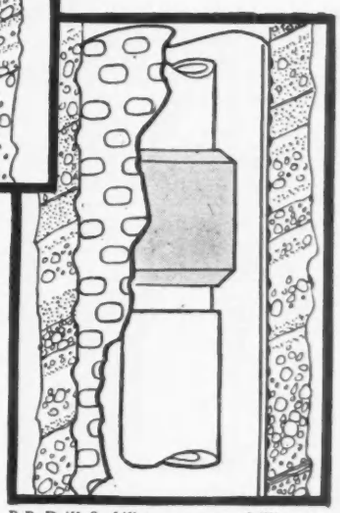
Patterson-Ballagh Protector on perforated liner to center same.





P-B Drill Stabilizer on casing inside of large diameter stovepipe casing.

These tough all-rubber, large diameter Stabilizers have many applications. For drilling inside of large size casing. Installed on drill pipe to prevent contact with casing. Especially desirable inside of stovepipe casing, on drill stem, on Kelly subs, and on perforated liners to center same. Can be used in cementing jobs to prevent thin walls by keeping plug in center of hole. When used in stove-pipe casing, these Stabilizers practically eliminate trouble from collapsing or from a broken seat.



P-B Drill Stabilizer on stem, drilling out cement plug.

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in securing the calculated results given in Figure 1. An average value was taken of several solubility shrinkage curves for Mid-Continent crude oils as determined experimentally by Lindsly[3].

Assume that 5 percent of the reservoir has been flooded when the bottom-hole pressure has fallen to 400 pounds per square inch. At that time, 272 million barrels of reservoir liquid fluid and 371 billion cubic feet of gas measured at standard conditions have been produced.

Let V = Total Volume of original reservoir content or space in millions of barrels.

Then $0.05V$ equals Volume of water (encroached) minus water produced.

Net amount of liquid removed from the reservoir equals: $(272-0.05V)$ million barrels

Let G equal Volume of Gas Cap in million barrels.

(1) Using Katz'[2] method

$$G=1+\frac{\left(\frac{1}{(0.0413\times 437)}\right)}{}(272-0.05V=1.058\ (272-0.05V \text{ million bbl.}$$

or $(288-0.0528V)$ million bbl.

Where 0.0413 equals the volume in cubic feet (gas-cap conditions) based on one standard cubic foot of gas, and 437 is equal to the number of standard cubic feet of gas evolved from 1 cubic foot of liquefied or dissolved gas:

(2) Volume of residual crude to produce excess gas=550 million barrels.

(3) Volume of residual crude to produce gas-cap gas $(5.62\times 437)\ (0.058)\ (272-0.05V)=(73.5-0.0092V)$ mil. bbls.

Where $(5.62\times 437)=2450$ cubic feet gas evolved by one barrel of liquefied gas and 527=number of cubic feet of gas evolved per barrel of residual crude oil between 2640 and 400 pounds per square inch.

(4) Volume of Oil-gas Reservoir=(Volume of Gas Cap plus Volume of remaining partially saturated crude oil

Volume of Reservoir=Volume of Gas Cap + Vol. of Remaining Crude Oil

$0.95V=(288-0.0528V)+1.14\ (550\ (73.5-0.0092V))$ where 1.14 is the volume of the crude oil saturated at 400 lb. compared with the volume of residual crude at atmospheric pressure.

V=983 million bbls. initial fluid present in reservoir.

This quantity is only 1.7 percent less than the amount of fluid based on no water encroachment, whereas a 5 percent water intrusion early in the life of the field would reduce the estimated initial fluid to 50 percent of that in the constant volume reservoir.

In most oil-gas reservoirs where the crude oil is found in a saturated state, some free gas is usually present as a gas cap. A hypothetical reservoir having a crude oil similar to the one described in this paper has the following production record:

Residual crude oil produced	=27.3 million barrels
Gas produced	=60.0 billion std. cu. ft.
Bottom-hole pressure	=1990 lb. per sq. in.
Original bottom-hole press.	=2460 lb. per sq. in.

Using the method employed by Katz[2], calculations show that 64.1 billion standard cubic feet would be evolved from the reservoir crude oil to fill the gas cap provided no original gas cap were present. If the assumption is made that none of the original free gas in the gas cap comes to the surface during this period, it is seen that this free gas will expand as the pressure falls from 2640 pounds down to 1990 pounds. If this same reservoir had an original gas cap occupying 50 percent of the oil-gas pore space, the following calculations would show the size of the reservoir: Further assume that no original free gas in the gas cap comes to the surface.

Let V=Total volume of Original Reservoir in million barrels.

Then $0.5V$=Total Volume of Original Gas Cap in million barrels

Let G=Volume of Gas Cap in million bbl. when the pressure=1990 lbs.

(1) Volume occupied by original gas cap at 1990 lbs. pressure

$$0.5V\times\frac{2640}{1990}\times\frac{0.83}{0.82}=0.672V$$

(2) Actual volume occupied by gas evolved from reservoir crude oil to fill gas cap.

64,100 million $\times$ 0.00699 = 448 million cubic feet or 79.7 million barrels—$0.172V$ since $0.172V$ equals the increase in volume of the original gas in the gas cap, due to the decrease in reservoir pressure. Where 0.00699 = volume of a standard cubic foot of gas at reservoir conditions,

$G=(1)+(2)=0.672V+(79.7-0.172V)$

Total volume of reservoir (V) = (1) + (2) + (3)

(1) Gas Cap

(2) Volume of Residual Crude to produce excess gas plus dissolved gas remaining

(3) Volume of crude for gas cap plus remaining dissolved gases

or (1) $0.672V+(79.7-0.172V)$ million barrels

(2) $276\times 1.293=357$ million barrels

(3) $\frac{(64{,}100\ 0.172V)}{(147\quad 1)}-1.293=564-0.223V$ (where 147 cu. ft. is the amount of gas evolved per barrel of crude) from 2640 lbs. down to 1990 lbs. pressure

V=1384, total size of oil-gas reservoir in million barrels

$0.5V$=692, space occupied by gas cap in million barrels

$0.5V$=692, space occupied by liquefied crude in million barrels.

Size of reservoir=1000 million barrels (saturated crude oil) based on a constant volume for the oil-gas reservoir, and no original gas cap.

It is seen, therefore, that the size of the oil-gas reservoir is somewhat larger than when the pore space was assumed to be filled entirely with saturated liquid. The amount of crude oil present in the former, however, would be only 69.2 percent of the quantity existing in the smaller reservoir completely filled with saturated crude oil.

Conclusions

Certain hypothetical cases have been discussed in this paper. However, with solubility-shrinkage and P-V-T data on the original bottom-hole fluids of a reservoir, along with fairly accurate statistics on the production of oil and gas, the actual quantity of fluids (liquid and/or gas) in a reservoir can be estimated by means of the material balance. Such factors as water encroachment and the presence of an original gas cap should be considered for under certain reservoir conditions these variables may affect the calculated results markedly.

The writer wishes to express his appreciation to Booth B. Strange, now with Western Geophysical Corporation, Tulsa, Oklahoma, and Donald J. Cowan, now with Gulf Refining Company, Port Arthur, Texas, for their assistance in making the calculations. These men received degrees in engineering from the University of Oklahoma in 1936.

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Proceedings A. I. M. E. Petroleum Division
Fort Worth Meeting, October 8-9, 1936

Determining Production Capacity and Pressure

By MORRIS MUSKAT,*
Gulf Research and Development Company,
Pittsburgh, Pennsylvania

IN preparing a well for pumping, observations are often made of the fluid level in the well bore, or bottom-hole pressures at various times before equilibrium has set in. From a qualitative point of view one may immediately infer that if the rise in the bottom-hole pressure or fluid level is rapid the permeability of the sand about the well bore is large, and converse conclusions may be drawn if the rise is slow. However, a more quantitative estimate will give additional information of value, as will be shown in this paper.

To derive such an estimate we may proceed as follows. Let h be the fluid height, above the sand face, at time t, and let γ_o be the average density of the fluid that enters the bore. The bottom-hole pressure, for a fluid height h, will, therefore, be $p = \gamma_o g h$, neglecting, of course, the friction drop in the well bore, while the fluid is rising, as may be justifiably done for most pumping wells.

If a is the free area of the open-flow string—assumed to be uniform—the rate of production from the sand during the rise of fluid will be:

$$Q = a\frac{\partial h}{\partial t} = \frac{a}{\gamma_o g}\frac{\partial p}{dt} = f(p), \qquad (1)^1$$

where the last part of the equation merely indicates that in general, the production rate Q must be considered as a function of the back-pressure, and is determined by it alone. In fact, equation 1 shows that if the rate of rise of the pressure or fluid level is determined as a function of the height of rise, or p, for a number of values of the latter, this functional relation between Q and p will be given immediately.

Conversely, if we know this functional relation, the rate of increase of p or h may be predicted, or by observing the rate of rise of p or h some of the constants of the sand may be determined. Thus we may approximate the production from a well in a pumping state by that of a dead fluid, and neglect the effect of the gas on the law of flow.

(In fact, if one should extrapolate to consolidated sands the results recently established for the flow of gas-liquid mixtures through unconsolidated sands (R. D. Wyckoff and H. G. Botset, and M. Muskat and M. W. Meres, *Physics*, September, 1936), it would appear that equation 2 may be a good approximation even if the oil and gas should flow as a "live" fluid, except during the first stages of the pressure build-up, when the liquid saturation about the well bore may show an appreciable increase. The constant c will then, of course, no longer be given rigorously by equation 8.)

We shall have then:

$$Q = c\,(p_e - p) \qquad (2)$$

where c is a constant depending on the dimensions of the system (sand thickness, well radius, "external" radius) and is proportional to the sand permeability, and p_e is the reservoir pressure. With this form for Q, the integral of Equation 1 takes the form

$$p = p_i + (p_e - p_i)\,(1 - e^{-\gamma_o g c t/a}) \qquad (3)$$

or

$$h = h_i + (h_e - h_i)\,(1 - e^{-\gamma_o g c t/a}) \qquad (4)$$

where, since $p = p_e$ and $h = h_e$ at $t = \infty$, p_e and h_e correspond to the actual closed-in bottom-hole pressure and the final equilibrium fluid level, respectively, and p_i h_i are the initial values of the bottom-hole pressure or fluid height; i.e., those at the instant chosen to represent $t = 0$.

Rewriting Equations 3 and 4 in the forms:

$$\frac{\gamma_o g c t}{a} = \log\frac{p_e - p}{p_e - p_i} = \log\frac{h_e - h}{h_e - h_i} \qquad (5)$$

(All logs are to base e, or natural)

we see that if the time is observed for the rise in the pressure or fluid height to the values p or h, and if the final equilibrium pressure or fluid height p_e, h_e is known, as well as the area of the hole a, and the fluid density, Equation 5 will give the value of c as:

$$c = \frac{a}{\gamma_o g t}\log\frac{p_e - p_i}{p_e - p} = \frac{a}{\gamma_o g t}\log\frac{h_e - h_i}{h_e - h} \qquad (6)$$

And if c is known, the production capacity of the

* This paper was presented under the title: "Use of Data on Build-Up of Bottom-Hole Pressure or Rise of Fluid Level in Pumping Wells in Determining Production Capacity of Well and Reservoir Pressure."

[1] Equation 1 implies that the increasing bottom-hole pressure is due only to the rising fluid head. It will, therefore, break down in the case of flowing wells after shutting in, where the compression of the gas in the well bore will give an additional time varying contribution to the bottom-hole pressure.

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well for any back-pressure follows from Equation 2. Thus the maximum pumping capacity would be when $p = 0$:

$$Q = cp_e = \frac{ap_e}{\gamma_o gt} \log \frac{p_e - p_1}{p_e - p} = \frac{ah_e}{t} \log \frac{h_e - h_1}{h_e - h} \quad (7)$$

In the latter form one does not need to know the fluid density. However, it should be mentioned that the observations of the pressure p or height h should be made for values that are not very close to the equilibrium values p_e, h_e, or else small errors in the measurement of p or h will give a relatively large error in the value of c and in Q.

If the times are observed for more than one pressure or fluid height, they should give the same value of c as computed by Equation 6 provided Equation 2 is correct. Or, the data may be plotted on semilogarithmic paper with the t on the cartesian scale and $p_e - p$ or $h_e - h$ on the logarithmic scale; the points should then lie on a straight line, the slope of which will give the value $\gamma_o gc/a$.

If Equation 2 is found to hold—i.e. if the above plot does give a straight line—the constant c may be resolved theoretically into the form:

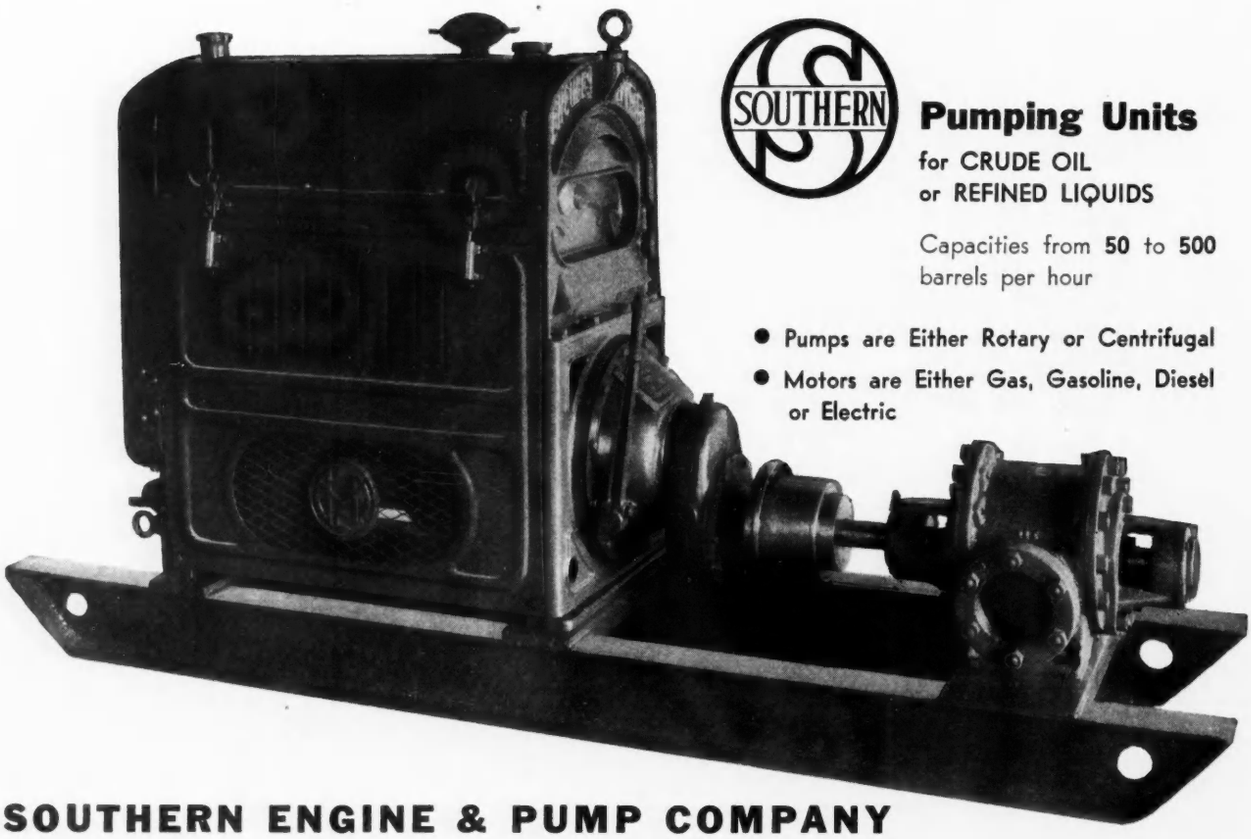
$$c = (2\pi kb/\mu)/\log r_e/r_w \quad (8)$$

where k is the sand permeability, b its thickness, μ the viscosity of the oil, r_w the well radius, and r_e the external radius at which the pressure is p_e, under flowing conditions. If, then, c is determined by the above method and the sand thickness and radii r_w, r_e are known, the sand permeability may also be computed.

(It is assumed here that the well completely penetrates the producing sand. If this is not so, and the actual well penetration is known, a correction factor must be applied. This will be found in the paper by R. D. Wyckoff, H. G. Botset, M. Muskat, and D. W. Reed: Amer. Assn. Petr. Geol. (1934) 18, 161, Figure 7.)

A deviation of the plot of $p_e - p$ or $h_e - h$ against t on semilogarithmic paper from a straight line may be due to one of two reasons. Either the flow is not like that of a dead liquid, so that Equation 2 is not valid, or the value of p_e or h_e, from which is subtracted the observed p or h, is incorrect. A choice between these alternatives may be made by attempting to straighten out the curve by changing the value of p_e or h_e. If this is unsuccessful, the incorrectness of Equation 2 is established. If, however, a straight line is obtained, Equation 2 will not only be verified, but the correct value of p_e or h_e will at the same time be obtained.

In fact, this adjustment of p_e or h_e so as to make the plot of $p_e - p$ or $h_e - h$ versus t a straight line, on semilogarithmic paper, affords a rapid and very sensi-



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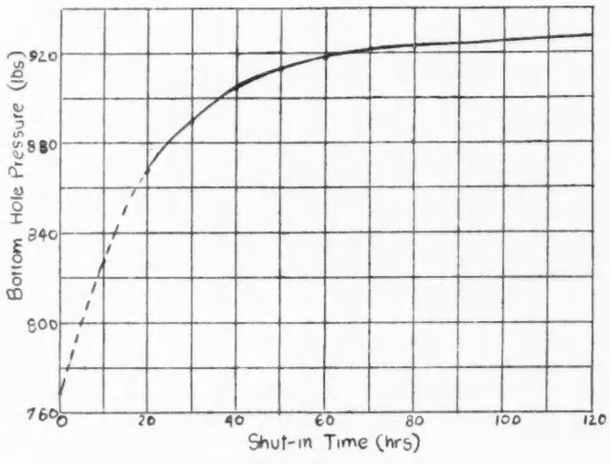


FIGURE 1

Average bottom hole pressure rise for 20 wells in the Judkins field, Ector County, Texas, March, 1935. The author is grateful to Mr. G. A. Pool, chairman of the Judkins Pool Engineering Committee, for permission to publish this curve.

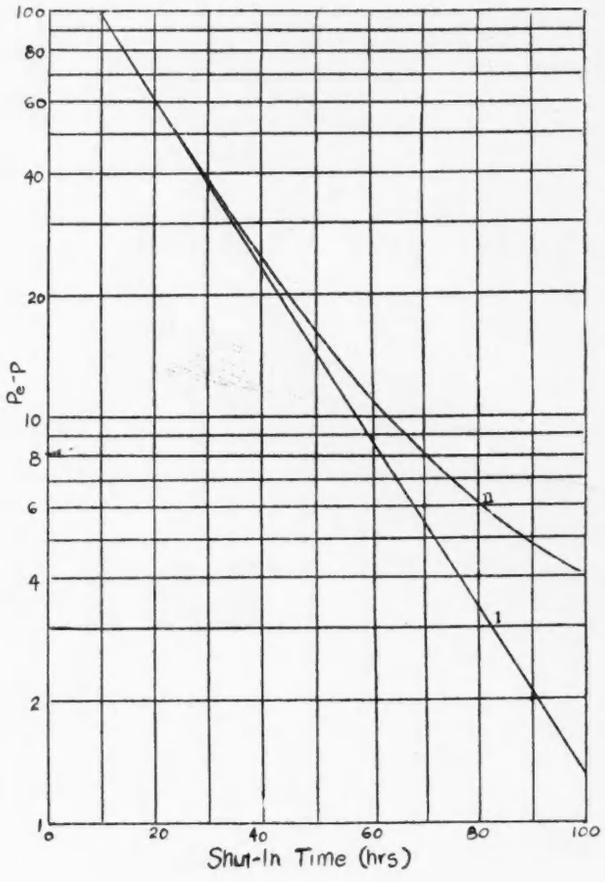


FIGURE 2

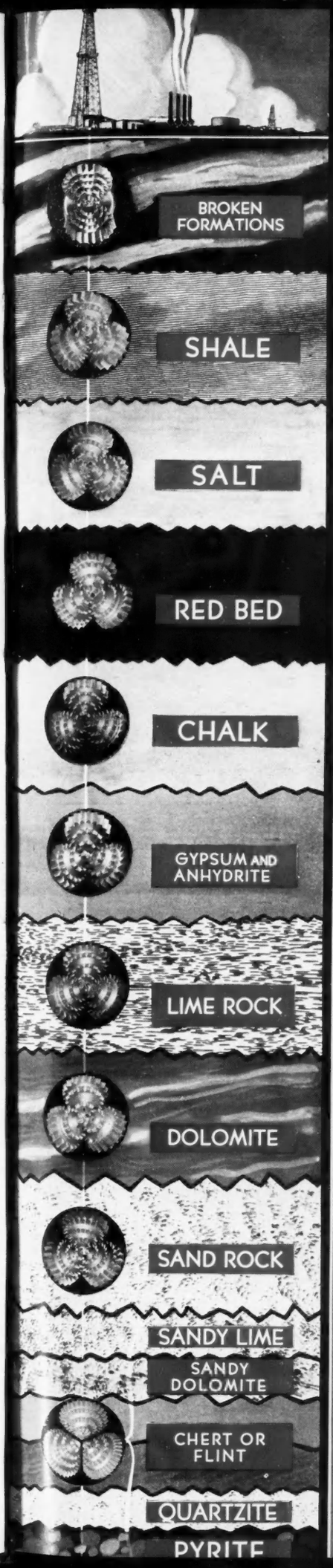
Data of Figure 1 replotted in a semi-logarithmic scale. p_e—p= reservoir pressure — bottom hole pressure; Curve 1 : p_e = 928 lbs; Curve 2 : p_e = 930 lbs.

tive method for determining the true reservoir pressure. For if the sand is "tight" it may take several days or more for the reservoir pressure to be built up at the bottom of the well bore, so that the cost of determining the reservoir pressure will be prohibitive. If, however, bottom-hole pressures or fluid heights are recorded simply for a pressure-differential variation of some twentyfold over a 10- to 20-hour interval, during the period of appreciable rate of increase, the above method will permit the determination of p_e or h_e without the necessity of waiting for equilibrium to be established. At the same time the value so obtained will be very accurate, as errors in the assumed value of p_e as low as 5 pounds will cause an easily detected deviation of the plot from strict linearity over a pressure range such as 40 to 800 pounds.

Although the author has not had available suitable field data with which to test satisfactorily the above theoretical results, the manner of the determination of the reservoir pressure may be illustrated by an application of the procedure outlined to the data shown in Figure 1, giving the average rate of increase in the bottom-hole pressures of 20 wells in the Judkins field, Texas. When plotted on semilogarithmic paper, with the reservoir pressure p_e taken as 928 pounds these data give the straight line, Curve I, Figure 2. If the data had referred to a single well this linearity would have been evidence of the general validity of the above theory for that case, and not essentially fortuitous, as it actually is. Furthermore the sensitivity of this test to the value 928 pounds for p_e, is strikingly shown by comparison of Curve I with Curve II, in which the same data are plotted, but with p_e =930 pounds.

It is hoped that with a knowledge of the possible applications of such field data as used above, it will be found feasible to collect at least enough to determine their value from a practical point of view. (A study of this kind is now being conducted by E. W. Kemler and G. A. Pool, of Gulf Oil Corporation.)

The author is indebted to Mr. R. D. Wyckoff for helpful discussions of this problem, and to Dr. P. D. Foote, the executive vice president of Gulf Research & Development Company, for permission to publish this paper.



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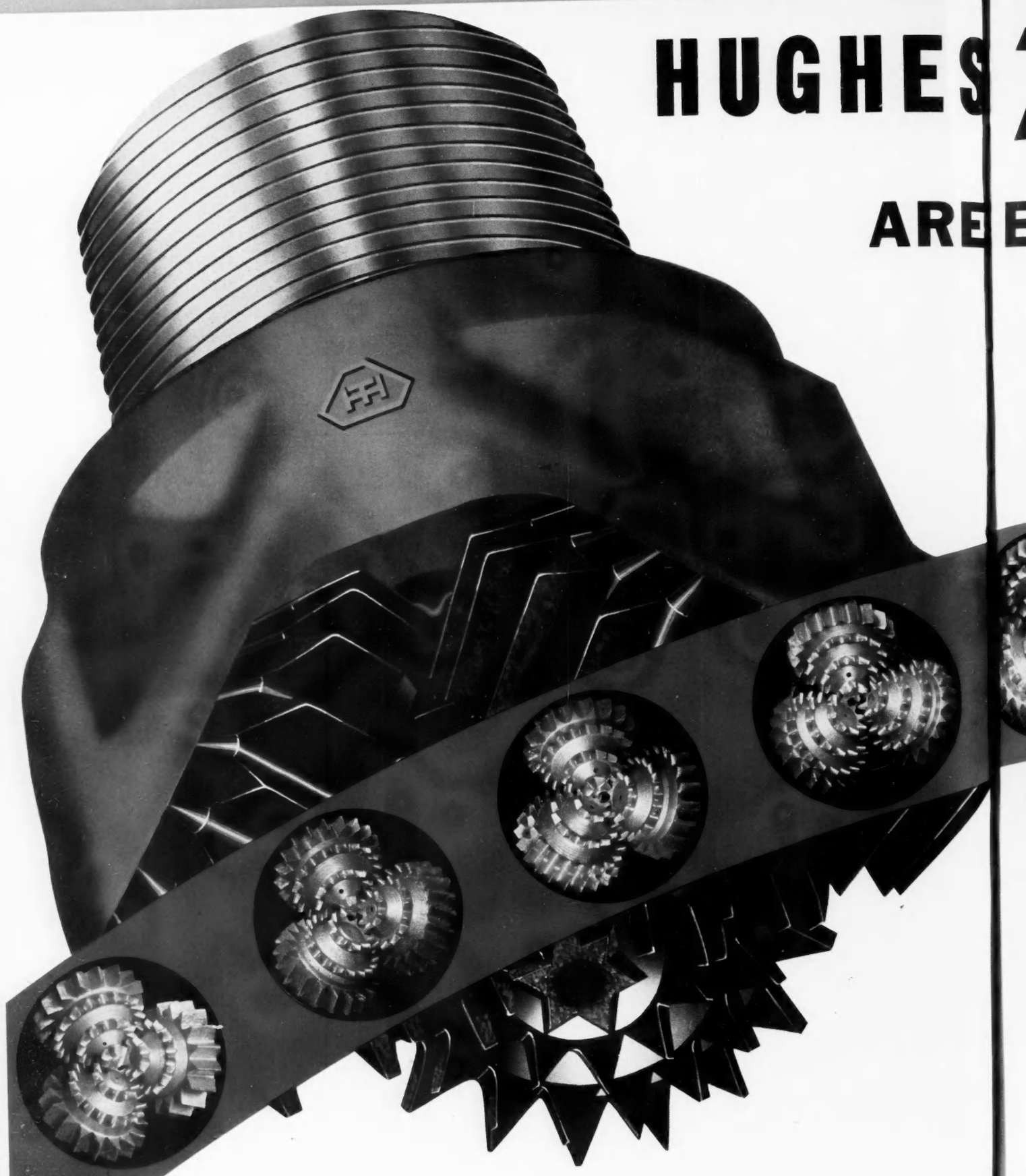
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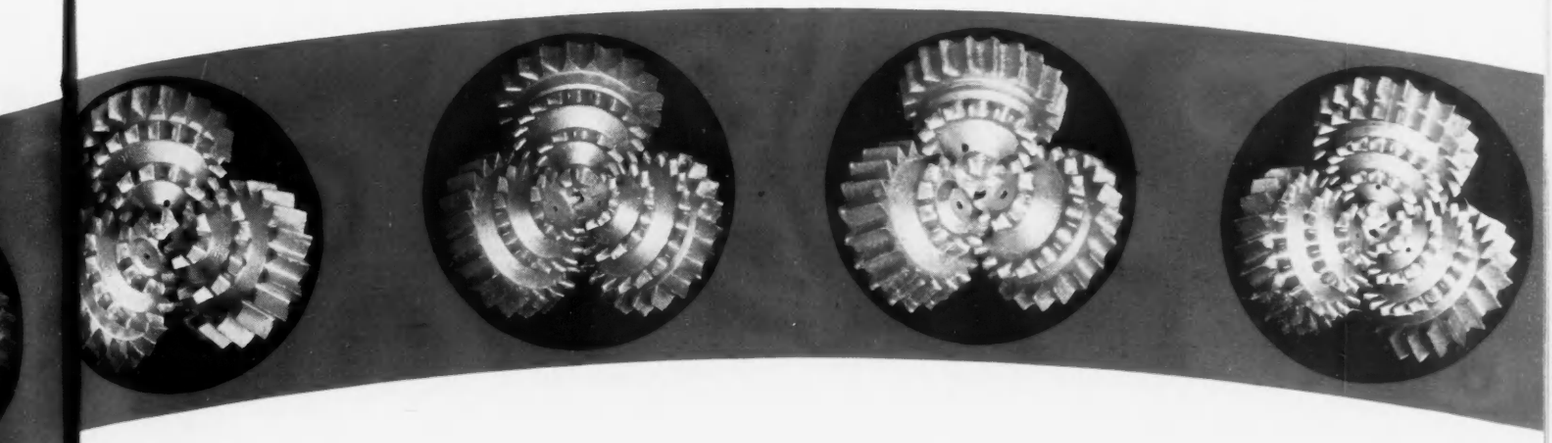

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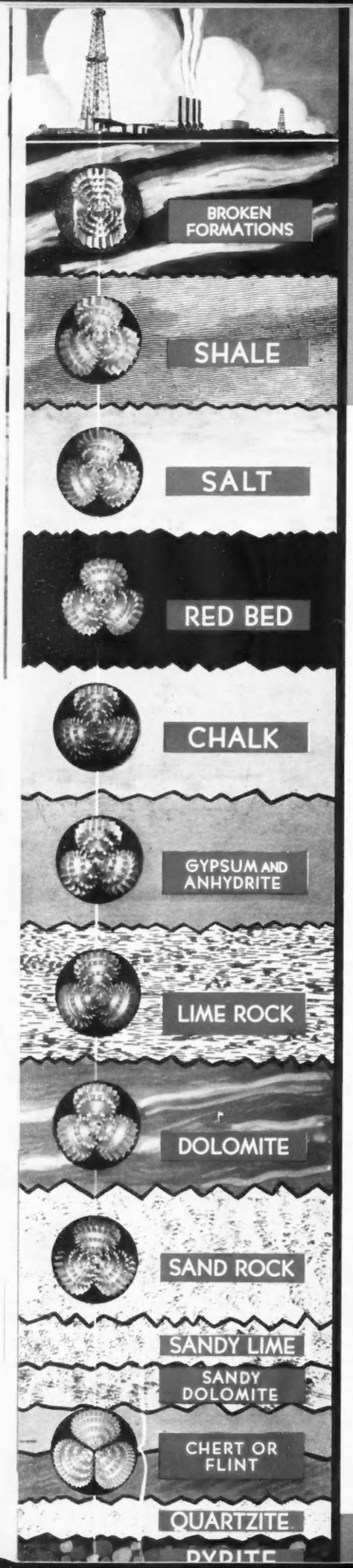

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The following diagram illustrates, in advancing order of hardness, the general types of formations grouped for the type of Hughes Rock Bit recommended:

SOFT	MEDIUM	MEDIUM HARD	HARD	HARD ABRASIVE
Broken Formation with Rock Layers and Gumbo Shale Breaks	"Top" Shales, Salt, Gyp, Anhydrite Red Bed Chalk	Lime Rock Hard Shale Medium Sand Rock, Hard Anhydrite	Dolomite Dolomitic Lime Rock Sand Rock	Chert Pyrite Quartzite, Dolomitic Sand Rock Chat
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Proceedings A. I. M. E. Petroleum Division
Fort Worth Meeting, October 8-9, 1936

Control of Water in Pumping Wells

By J. J. ZORICHAK, Member A.I.M.E.
Stanolind Oil & Gas Company,
Tulsa, Oklahoma

SINCE proration has been in effect, considerable progress has been made in the proper utilization of natural reservoir energy, particularly in fields in which hydrostatic energy is the principal expelling force. The East Texas, Hobbs, Yates, and other fields of similar type, are examples of what may be accomplished by the proper utilization of natural reservoir energy. The same fundamental physical laws that govern the behavior of fluids in flowing fields apply in pumping fields. However, there has been a tendency in the past to devote less thought to the control of water in pumping fields than in flowing fields.

The purpose of this paper, therefore, is to summarize and review the factors entering into the control of water production in pumping fields. It is hoped that a discussion of these factors will stimulate further interest in the subject and a greater application of methods to control water. This discussion is limited to fields in which hydrostatic energy is the principal expelling force and the reservoir is one intercommunicating system. Some methods of utiiizing the hydrostatic energy to best advantage are discussed; the ultimate goal being the greatest recovery of oil at the smallest cost per barrel of oil recovered.

Pumping wells fall into two groups: 1) Wells having insufficient energy to flow naturally, which are completed as pumping wells; 2) wells that have ceased to flow naturally.

In a pumping well the same principles govern control of water as in a flowing well. Water and oil are two distinct fluids, each possessing its individual physical characteristics. Some of the more important physical properties involved in the movement of oil and water in a reservoir are density, viscosity and interfacial tension. The approximate density of the average oil in the reservoir is plus or minus 0.7, while that of water is one, or slightly higher for brines. The difference in densities plays the greatest part in the concentration and accumulation of oil in the top of the structure. Because of the difference in density the oil overlies the water, and it is in this relation that oil and water are generally found in a reservoir. A condition of equilibrium between the oil and water exists before the first well is drilled. The water may be found as bottom water or edge water. Density and viscosity play an important part in the movement of oil and water through the more permeable and cavernous reservoir rocks, while the interfacial forces play an important part in capillary spaces.[1]

What, then, is our problem? Our problem is to keep the oil and water separate as long as possible, while withdrawing the oil from the reservoir, and to produce the maximum recoverable oil in the most efficient and economical manner. The least expensive producing program is that in which as little water as possible is produced, and while water production is being restricted, the body of water in the reservoir is being used as a piston to displace the oil from the reservoir. How can this be accomplished? At least partly, it can be accomplished in the following manner:

1. Minimum penetration of the pay zone. Stop drilling as soon as a commercial well is assured.
2. Eliminate or modify potential tests and establish uniform and comparatively low rates of withdrawal.
3. Maintenance of a uniform back-pressure at the face of the producing zone.

The first factor in water control is penetration. The minimum penetration yielding a commercial well is the most desirable from the standpoint of water control and efficient utilization of the hydrostatic energy. In the ideal producing program, the oil is withdrawn from the upper part of the pay zone, while the water from beneath displaces the oil withdrawn. Irregularity in the texture of the reservoir rock will have much to do with the course the water takes. Eventually, when most of the oil has been removed, a certain amount of water will be handled, but only a fraction of the quantity produced when penetration is high. A well can always be drilled deeper, but a plug-back job is not always successful.

The value of low penetration in water-producing zones has been demonstrated in the development of a number of leases on the west side of the East Texas field. In a number of wells having penetrations as low as 1 or 2 feet, no water has yet appeared, while wells with higher penetration, somewhat more favorably located structurally, are producing water. In the Hogback field in New Mexico the average penetration in a 40-foot pay zone carrying water is only 6 feet, or 15 percent. This field has been produced under back-pressure during the past 12 years and at present the water production of the field is only 0.6 percent of the total fluid. Yet, this field is under full hydrostatic drive. Gas production is small. The estimated bottom-hole pressure is roughly 430 pounds per square inch and the average depth of the wells about 675 feet. At

[1] A. D. Garrison: Selective Wetting of Reservoir Rock and Its Relation to Oil Production. Amer. Petr. Inst., May, 1935.

this depth the wells flow, but if the depth exceeded about 1400 feet these wells would be pumped. If they were pumping wells and under competitive conditions, what practice would have been followed? It is quite probable that maximum penetration of pay would have been taken, pumping equipment would have been run with the working barrel located near the bottom of the hole, and the wells pumped at a rate approximating the capacity of the pumping equipment, with the result that the differential pressure between the reservoir and the face of the sand would have been increased to such an extent that premature water production would have occurred. Under these conditions, the water would have lost its effectiveness in driving the oil out of the pay zone, and the operating problem would have resolved itself into handling large quantities of water. As a result of the low penetration, low rates of withdrawal, and the maintenance of back pressure, the field has produced 1,665,000 barrels of oil from 160 productive acres through seven wells to January 1, 1936. On a test taken March 2, 1936, the wells made 196 barrels of oil and 1.15 barrels of water, or 0.6 percent water. The flowing pressures ranged from 100 to 200 pounds per square inch.

The three factors, penetration, rate of withdrawal, and the maintenance of uniform back-pressure as they apply to water control, are all interrelated and therefore will be discussed more fully under rate of withdrawal.

Rate of Withdrawal and Maintenance of Uniform Back-Pressure

Two obstacles to the control of water in pumping wells are the taking of potentials and irregular pumping schedules. In general, present practice consists in drilling a maximum thickness of pay zone above the water, the installation of the maximum capacity pumping equipment permitted by the state regulations and taking potential tests at the maximum permissible speed of the pumping equipment. Naturally, this creates an ideal condition for early entry of water into a hole. High penetration brings the bottom of the hole nearer the water where bottom water is present. Therefore, during a potential test, when the rate of withdrawal is high, conditions favorable to premature water production are created.

Muskat and Wyckoff[2] have shown experimentally that water intrusion is accelerated at high rates of fluid withdrawal. This has been demonstrated in a practical manner during many potential tests. Frequently the first appearance of water in a well is during or immediately following a potential test, and once water has made its appearance in a well it usually becomes a permanent problem. The application of back-pressure may reduce the percentage of water, but after water has broken into a well it will remain a problem during its remaining life.

Since the fluidity of water is about four times greater than the fluidity of an average oil, during a potential test when the highest fluid velocity is attained in a reservoir, water entry into a well is encouraged. Once a reservoir rock becomes wet with water, a condition detrimental to oil entry into a well is created, and to reestablish the original oil-water contact would probably take a long period of shut-in time. Ordinarily a well is kept on production after water appears, and in many instances oil is trapped and will not be recovered. It is only logical to conclude that in order to minimize water-handling problems we make water entry into a well as difficult as possible.

Garrison states[1] that rapid production increases the water content of the reservoir below the well bore at the expense of the oil content. This promotes the early production of water, whereas slow production retards the water and promotes recovery of oil.

In the Hudson, Kansas, field a Siliceous lime pool, the percentage of water increased when the average well production approached 200 barrels per day and the tendency was to decrease when the average well allowable was decreased. Since it is known from past experience and experiments that high rates of withdrawal bring water into a well prematurely, why does the industry tolerate a system known to be detrimental to the best interests of all concerned? In addition to causing unnecessary expense, the taking of potentials and high rates of withdrawal contribute to the loss of oil under-ground which, under more efficient production methods, would have been recovered.

Because the market for crude is limited, it is necessary to limit the allowable production of wells, but in order to obtain a well allowable, it is necessary to take a potential test. Therefore, the operator must provide pumping equipment at a cost of approximately $7000, whereas the allowable production could be pumped with equipment costing about $3000 per well. Other items of expense that would be reduced if potential tests as now taken were discontinued or modified are:

1. Wear and tear on big equipment.
2. Higher cost of operating big equipment.
3. Additional tankage for potential tests.
4. Satisfactory disposal of salt water that may be be brought into a well prematurely.
5. Corrosion of lease lines and tankage.
6. Sulfide embrittlement, corrosion and corrosion-fatigue of sucker rods.

These problems are quite serious in the Siliceous lime pools in the state of Kansas, in which hydrostatic energy is the chief expelling force.

While several Siliceous lime pools have had flowing wells, most of the pools are developed as pumping fields. In many of these, the fluid level is high, within several hundred feet of the top of the hole, and remains fairly high during the life of the field. Yet it is common practice to run 3-inch tubing with the working barrel at or near the bottom of the hole and, for a potential test, to operate the well at the maximum speed permitted by the state regulations. Potentials as high as 2000 barrels per day are established, in order to secure a daily allowable of a few hundred barrels per day. This system requires the operator to provide much more pumping equipment than is necessary to produce the daily allowable production, at considerable additional cost.

What is the solution to this problem? Since the reservoir provides sufficient energy to lift the oil to

[2] M. Muskat and R. D. Wyckoff: An Approximate Theory of Water-coning in Oil Production. **Trans.** A.I.M.E. (1935) **114**, 144.

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within several hundred feet of the top of the hole, it seems logical that the ideal system would provide for lifting the oil from the point of delivery by the natural reservoir energy, at the allowable rate of production and pumping 24 hours per day. Good results have been obtained in the Stoltenberg area by pumping with the barrel about halfway down the hole. Summarized briefly, the program would involve the following: 1) Minimum penetration of the pay zone, after exploratory work has been completed; 2) modified potential tests and uniform rate of withdrawal, 24 hours per day; 3) lifting the fluid from some point just below the top of the fluid level.

It is obvious that the time has come for finding a substitute for the potential test. The oil industry must work out a satisfactory method for determining the productivity index of each well, and to modify potential taking to such an extent that it can be determined with a minimum differential pressure between the reservoir and the face of the producing zone. Some work has already been done on this problem. After a well goes on regular production it should be produced uniformly 24 hours per day at the allowable rate, in order to keep the bottom-hole differential pressure at a minimum. Pumping with the working barrel only a sufficient distance below the top of the fluid level will aid in maintaining a more uniform bottom-hole pressure while producing the well and minimize the fluctuations in differential pressures. It seems necessary to do this if we are to prevent premature water production. Obtaining potentials with barrels up the hole at a selected datum has possibilities.

The ideal skimming operation would be that in which the fluid obtained is 100 percent oil. The recovery of oil should be looked upon as a skimming operation from the very beginning. However, eventually all wells go to water when the water has reached them, and the reservoir in the vicinity of the wells has been partially depleted. The courses open are: 1) handle all fluid; 2) skimming operation.

Pumping all or nearly all fluid as it comes into the hole is the more common practice; however, in some instances water disposal is a serious problem, or mechanical difficulties may occur. In such instances, skimming may be practiced, which consists of pumping intermittently the oil that settles out on top of the water or pumping the well continuously at a slow rate. In some instances, this practice has been satisfactory. In the Hilger area one well producing from the Viola lime pumps 16 barrels of oil and 430 barrels of water with the barrel located at a depth of 1000 feet. The total depth of the well is over 4000 feet.

Conclusions

It appears that this problem will not be solved satisfactorily until the various state laws and regulations are so revised as to conform to sound operating practices. If the taking of potentials contributes to waste, both physical and economic, the proper steps should be taken to revise the laws and regulations until they are consistent with good operating practice. We must work with and not against the natural physical laws. Probably the logical method for solving this problem would consist in a study of each area or field by a committee of engineers, who would make recommendations as to the proper procedure in developing and producing these fields.

Utilizing the natural reservoir energy to better advantage will accrue to the benefit of all concerned, the operator, the royalty owner, and the state, through increased revenue, decreased cost, and greater ultimate recovery of oil.

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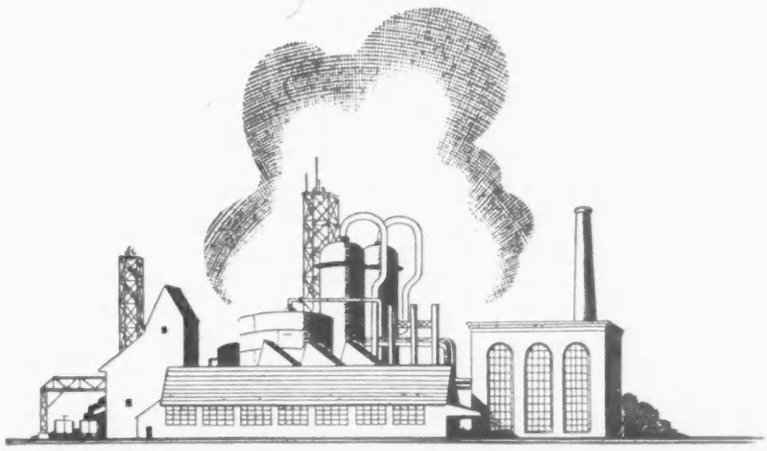

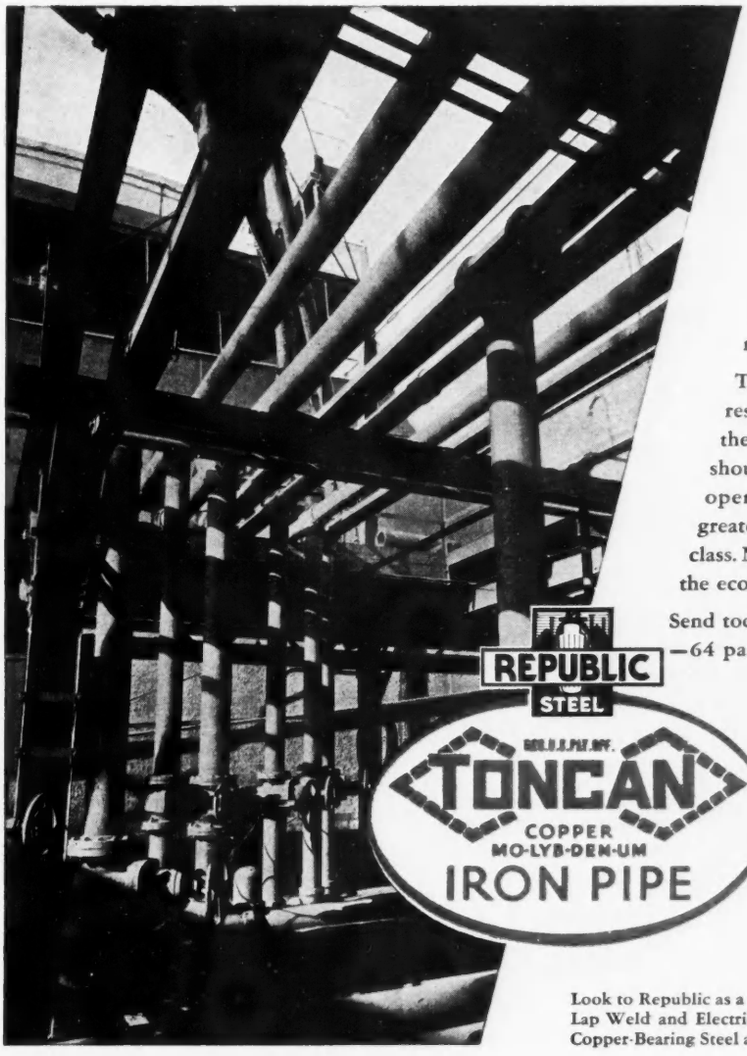

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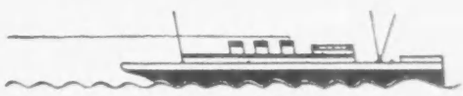

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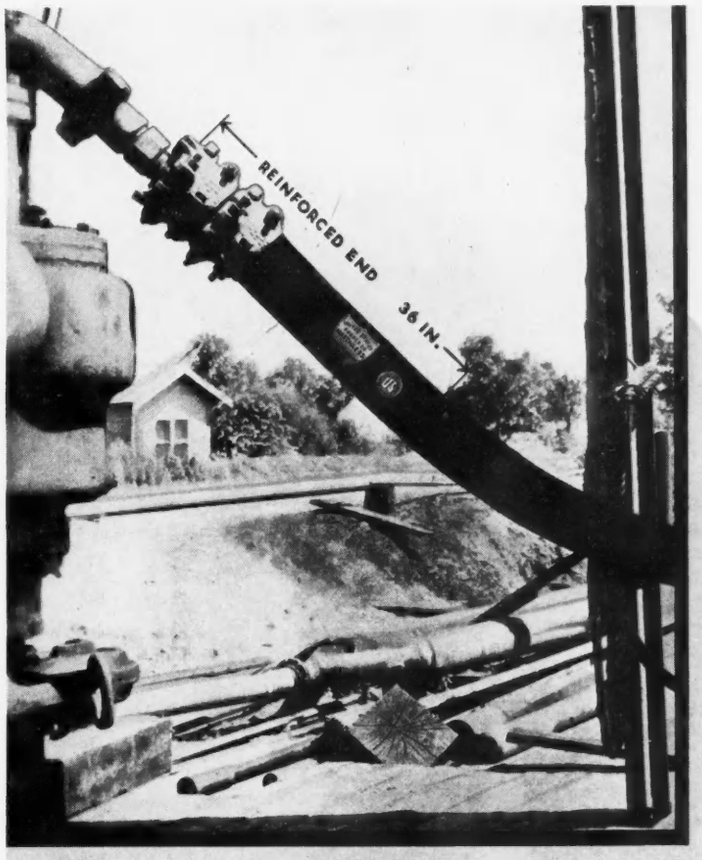

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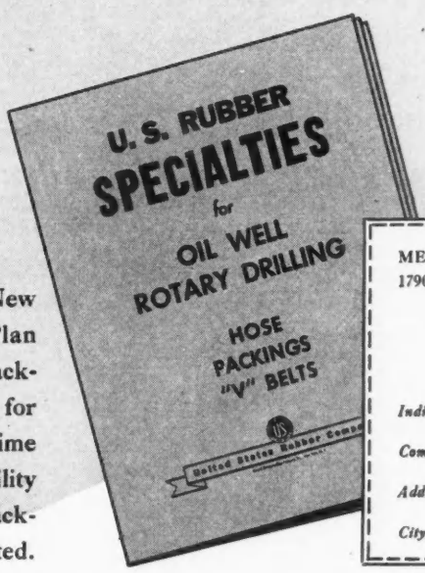

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Pressure Controlled Completions

ARE NOT NECESSARILY HIGH PRESSURE OPERATIONS

By JOHN O. FARMER,
Otis Pressure Control, Inc.,
Dallas, Texas

MANY oil men, who have not had actual experience in completing a well under pressure control, are under the impression that the operation requires the carrying of dangerously high working pressures on the surface connections during the drilling-in operations. That the carrying of these dangerously high surface pressures is not normally necessary is indicated by the fact that the maximum drilling-in surface pressure on the second Wilcox sand wells in the Crescent, Oklahoma, field — wells with potentials ranging from 35,000 to 65,000 barrels per day with from 45,000,000 to 88,000,000 cubic feet of gas—is less than 200 pounds per square inch while the average drilling-in pressure on the several hundred wells completed in this manner in Oklahoma, Texas and New Mexico is considerably less than 100 pounds per square inch. Certainly these surface drilling pressures are not high enough to be classed as hazardous.

The lowering of possibly high closed-in pressures to the low drilling-in pressures given above is accomplished simply by pulling the well nearly wide open while drilling is taking place. It might seem, at first, that this nearly wide-open operation of the wells might result in coning as the water level is approached. Possibly there is some danger of this under certain conditions, but when it is considered that the drill stem occupies a large portion of the casing, thus reducing the effective flow area and increasing the friction of flow, and that the pumps throughout the drilling operations are being used to circulate oil and gas, thus tending to partly load the well and to increase the friction of flow up the casing, it will be realized that nearly wide-open flow at the surface by no means necessarily implies a marked lowering of bottom-hole pressure. No mechanical equipment is available for accurately measuring these bottom-hole flowing pressures while drilling and circulating are both taking place, and it is probable that attempts to calculate them would be little more than a series of guesses. However, enough is known regarding resistance to flow through the annular space between two pipe strings, and enough experience has been obtained when snubbing pipe against flow, to warrant the above statements regarding pressure drop from the bottom of the hole to the surface. Also, at times the large variance between flow capacity at a given surface working pressure with the drill stem in the well and with circulation taking place, and the flow capacity of that well against a similar surface pressure with the drill stem out of the well and no circulation taking place, indicates that considerable back-pressure may be held on the sand while drilling and circulating. It is obvious that where well productive capacities are large, relatively high bottom-hole pressures together with low surface pressures can be maintained with but little, if any, assistance from the pumps. Where, however, well capacities are low, the higher bottom-hole pressures may be maintained by increasing pump speed or by increasing the amount of gas introduced through the drill pipe. Oklahoma City furnishes a simple extreme instance of this means of increasing the back-pressure on the sand, in that increasing the rate of either oil or gas circulation beyond a certain point may kill the production from the formation. Making connections necessitates momentarily shutting off the pumps. The time required for making connections is, however, so short as to ordinarily have no material effect on surface flowing pressures, although in some instances it is the practice to speed up the pumps for a few minutes just before making a connection in order to maintain a low surface pressure without lowering bottom-hole pressure to too great an extent.

Probably the most satisfactory method of determining the bottom-hole flowing pressure while drilling and circulating would be to gauge the well's net productive capacity against a reasonable range of surface flowing pressures, and to compare these net figures with the production index curve of the well after completion. Such a comparison should indicate at least the approximate bottom-hole flow pressure when circulation and drilling were taking place. In order to have a comparable well condition, the tubing in the well, when taking pressure readings for the production index curve, would need be of the same outside diameter as the drill stem employed and flow would have to be from between the casing and tubing. Productive tests of a well while drilling in usually are

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made with circulation stopped and often with the pipe picked up off bottom, and tests of the well's capacity after completion usually are made of the flow through, not around, the tubing. Usually too, either the drilling contractor or the operators are in too much of a hurry while drilling-in to closely gauge both rate of circulation and well delivery. The information regarding the drilling-in bottom-hole pressures that might be obtained by a series of such tests would, however, seem to be well worth while.

While maintaining comparatively high bottom-hole flowing pressures during the drilling operations may be of importance in some fields, there are many fields in which the drilling-in time is so short after the bit has penetrated the sand that wide-open flow at the surface to maintain low surface drilling pressures will do no harm. In many areas, too, the problem is not so much the matter of holding a high bottom-hole pressure and a low surface pressure as it is one of maintaining a low enough bottom-hole pressure to permit the well to produce into the circulating column. The Mansion area of Oklahoma City affords such an example. With bottom-hole pressures of only 500 pounds or less, the operators are primarily interested in maintaining a low enough bottom-hole pressure to permit the wells to produce during the drilling-in operation. To accomplish this, 3-inch drill stem was generally used inside of 8⅝-inch or 9⅝-inch casing to secure a large annular opening between the strings, and, after production was obtained, pumping was no faster than necessary to keep the bit clean.

Only a few data are available to substantiate the assertion that there often is a wide differential in the capacity of a well with the drill stem and bit in the hole and the capacity of that well with the drill stem out of the well. An average of the capacity of 8 representative wells in the Oklahoma City field with the drill stem picked up into the casing was shown to be 225 barrels per hour. These same 8 wells, with the drill stem out of the hole and producing against approximately the same trap pressure, showed an average potential of 707.5 barrels hourly, or an increased capacity of 318 percent. The average capacity of 2 of the recent large high-pressure completions in Crescent, Oklahoma, was 975 barrels per hour with the drill stem in the hole and 2100 barrels with the drill stem out of the hole. The average increased capacity in this instance was 215 percent. The latter figures were obtained with no circulation taking place. Had the pumps been in operation while the tests were being made with the drill stem in the wells, the average net producing rate of the wells would doubtless have been much less than the 975 barrels given. Certainly the above figures would indicate that nearly wide-open operation of the wells while drilling and circulating does not necessarily imply a dangerous drop in bottom-hole flowing pressures.

Going In and Out

This discussion has concerned only the low pressures maintained while drilling and circulating. It is also usually possible to maintain low surface pressures while coming in or out of the hole with the drill stem; as shown by the fact that in the majority of instances it is possible to make trips with the drill stem through oil savers only, and that only occasionally is snubbing necessary. Low surface pressures are maintained while making a trip either by flowing the well hard or by loading as nearly as possible with oil just before starting out with the pipe. There are, of course, areas in which the formation porosity is so great that no appreciable loading with oil can be accomplished; and, too, it is not always practicable to have sufficient storage to permit flowing the well hard during trips. For such conditions there is always the customary high-pressure control equipment for running and pulling pipe to fall back on if necessary.

A brief summary of the drilling-in procedure in the principal Mid-Continent areas in which drilling-in under pressure control is generally practiced may serve to indicate that low surface drilling pressures are usually possible.

The Mansion Area, Oklahoma City

The low bottom-hole pressure, the loosely cemented sand, and the high saturation that are present in the Mansion area of Oklahoma City are factors that the operators have to consider in pressure drilling. The top of the Wilcox sand is encountered between 6375 and 6450 feet. Either 8⅝ or 9⅝-inch casing is set upon the sand. Between 85 and 100 feet of sand is then drilled, depending upon the thickness of the sand and the proximity of the water level. Operators try not to drill below 5275 feet sub-sea level, which is the water level. The Wilcox sand is so porous and permeable that it is impossible to circulate water or oil alone, so it is necessary to use gas and oil as a medium for lifting cuttings and lubricating the bit. A column of 48° A.P.I. gravity oil 6400 feet long exerts a pressure of approximately 2000 pounds per square inch at the sand face. And since there is only approximately 500 pounds per square inch bottom-hole pressure, the oil alone would go back into the formation rather than circulate. It is, therefore, necessary to lighten the fluid column with gas. Approximately 3,000,000 cubic feet of gas per day, under 600 to 700 pounds per square inch pressure, is injected into the oil stream at the standpipe to lighten and aerate the column and lift the cuttings. Before sufficient formation oil is encountered to provide natural flow, 20 to 30 barrels per hour are circulated into the hole with the gas.

Operators have found that it is best practice to have the wells flowing their maximum capacity while drilling-in, for two reasons: 1) The Wilcox sand is loosely cemented, and if produced wide open the hole will "bell shape" and create a larger drainage area; 2) if a well is produced wide open, the velocity of the flow is so great there is little chance for the cuttings to settle back around the bit and drill pipe to cause a stuck job. Therefore, the operators are desirous of having as little back-pressure as possible on the surface connections. This is accomplished by having oversize flow lines, a large oil and gas separator, and oversize oil and gas vent lines. These oversize connections contribute to some extent to the low flowing pressures encountered while drilling-in. The only pressure carried on the separator is that required to force

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the oil to the tank battery, or about 35 pounds per square inch.

Edmond, Britton and Crescent Area

In the Edmond and Britton pools the production is from the Wilcox sand, which varies in depth from 6450 to 6750 feet. Either 7-inch or 8⅝-inch casing is set on top of the Viola lime and cemented with 2000 sacks of cement. The cement plug and 140 to 150 feet of Viola lime are drilled with mud fluid. Water is then pumped into the hole to displace the mud fluid. A high-pressure gas line is hooked into the standpipe, and the water is blown from the hole by stages. The Viola lime is treated with 1000 to 3000 gallons of acid under pressure of several hundred pounds. After the acid is allowed to set 36 hours in the well, drilling is resumed, oil being circulated to lift the cuttings. The bottom-hole pressure varies in this field from 2200 to 2600 pounds per square inch. This column of oil is barely sufficient to load the hole and keep the well from flowing. At different depths the operators will kick off a well by tying the high-pressure gas into the standpipe in order to take a production test. The connections on the Christmas tree consist of two master gates, flow cross, blowout preventer, oil stripper and Kelly drilling head. A few of the wells have been drilled-in by circulating gas and oil and permitting the well to flow while drilling was in progress. Pressures on the Christmas tree were about 30 pounds per square inch during this operation. These low flowing pressures in spite of the high shut-in pressures are probably due to the small volume of gas and oil in the pay sand, and a tightly cemented, rather impermeable reservoir.

The present activity in the Crescent pool consists of drilling into the second Wilcox sand, which is about 75 feet below the upper Wilcox. The State Corporation Commission recently has classified these two sands as having separate sources of supply, which has forced the operators either to twin the old well or cement a liner shutting off the upper Wilcox before deepening into the lower Wilcox. The same process of drilling is practiced here as in Edmond and Britton, oil being used as a medium for lifting cuttings. The uper Wilcox has a bottom-hole static pressure of about 1800 pounds per square inch, so the hole can be loaded easily with oil. The section separating the two sands is extremely hard, and only 2 to 4 feet of hole can be drilled with one bit. The second Wilcox is loosely cemented, very porous and highly saturated, having a bottom-hole pressure of approximately 2400 pounds per square inch. It is almost impossible to keep the hole loaded with oil, so the well is permitted to clean itself; and the remainder of the hole is drilled with the well flowing. Three floats are used in the drill pipe next to the bit; but when the big "pay" is hit, the floats usually cut out or fail to operate properly. A special tool joint is now being used, which has a locking recess that serves to engage a removable plug. The special tool joint is placed on the the first joint above the floats. When the floats fail, the plug is pumped down to seat to the special nipple. Any flow upward tends to seat the cups on the plug, causing a shut off. When the drill pipe is in the hole, the wells flow from 800 to 1500 barrels per hour, with 40,000,000 to 50,000,000 cubic feet of gas daily. While the wells are in this condition the pressure on the control heads is from 100 to 175 pounds per square inch.

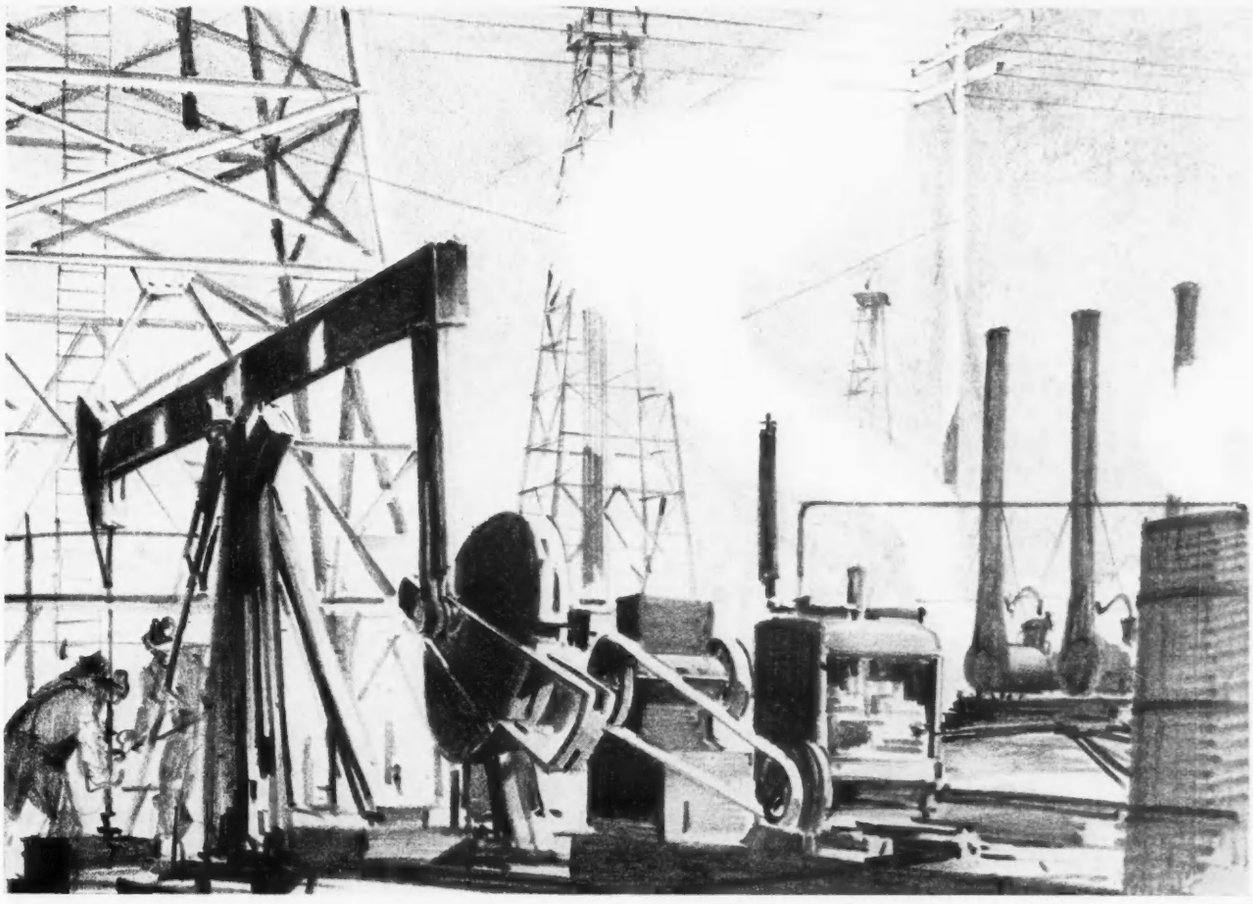
Fitts and Jessie Pools

The production in the Fitts field of Pontotoc County, Oklahoma, is from three different horizons and is classified as three separate sources of supply. The Hunton lime is the first commercial production encountered and usually is topped at about 3300 feet. This section varies in thickness from 150 to 250 feet. It is the practice of several operators to acidize the Hunton in stages; that is, to drill 100 feet and acidize, then drill the remainder and acidize. No potentials are taken on these wells, since they are allowed a flat rate of 79 barrels per day. The bottom-hole pressure on these wells is from 800 to 1750 pounds per square inch.

The Viola lime, the Bromides and the McLish sands constitute the second source of supply. The average thickness of this pay is as follows: Viola, 230 feet; Bromides 250 feet; McLish, 325 feet. Either 7-inch or 8⅝-inch casing is usually set 10 to 50 feet in the Viola. The bottom-hole pressures vary from 1100 to 1250 pounds per square inch on the west side to 1600 to 1750 pounds per square inch on the east side.

The Wilcox sand is the last source of supply, and usually is topped around 4300 feet. A string of 9⅝-inch casing is set on top of the Viola. The Simpson series is drilled and a string of 7-inch casing is set in the Wilcox lime. About 140 feet of Wilcox sand is then drilled. The bottom-hole pressure of the Wilcox is around 1400 pounds per square inch.

The method of drilling-in the above wells is practically identical with the method employed in the Jessie field. Cement is allowed to set 7 days, then drilled by circulating water. As soon as the plug is drilled, the column of water is lightened by connecting a high-pressure gas line into the standpipe and circulating 1,000,000 to 2,000,000 feet of gas, under 800 pounds pressure, along with the 350 barrels of water per hour that is being pumped into the hole with mud hogs. As soon as the formation begins to make sufficient oil, the water is pumped into the pits and oil and gas used as a circulating medium. Operators try to keep the back-pressure on the well connections below 100 pounds per square inch to maintain sufficient velocity to prevent cuttings from settling back around the bit and causing a stuck job. In a few of the Wilcox wells the operators were unable to get the flowing pressure below 125 pounds per square inch, but as a general rule it is comparatively easy to pull the well down below 100 pounds per square inch. A production log is made for each well, and is regarded as very valuable information. It is a pictorial representation of a well, showing exactly the productivity of each foot of formation. As a well goes into the later stage of depletion, and



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cleaning out or plugging back becomes necessary, this log becomes a guide for the operators.

New Mexico and West Texas

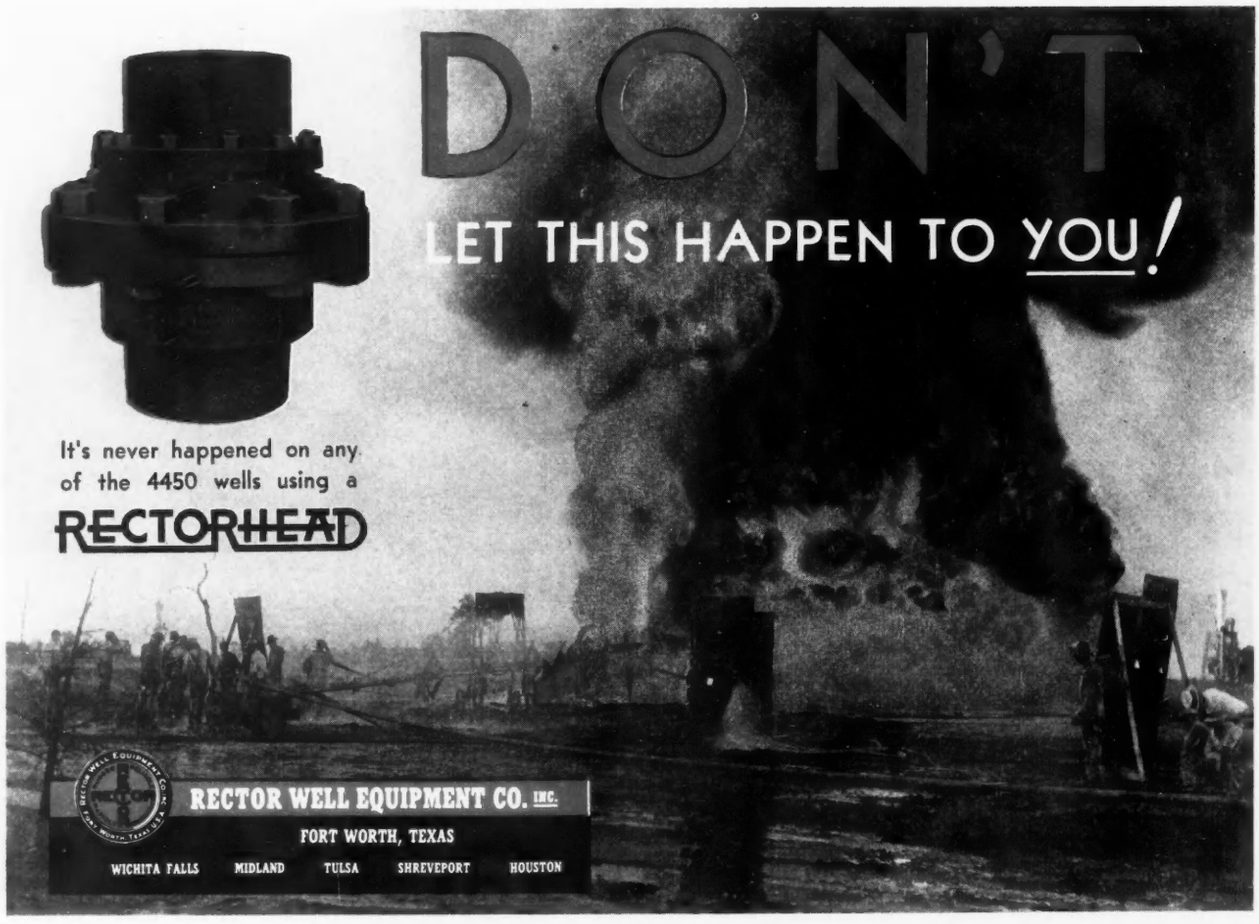
Well completions in New Mexico and West Texas are very similar to the operations in the Edmond and Britton field. The cement plug is first drilled with mud fluid, then the intakes to the mud pumps are connected to an oil-circulating tank. The mud is displaced with oil and actual drilling is started. The bottom-hole static pressure in the Monument and Eunice pools is from 1390 to 1430 pounds per square inch. The depth of this production is approximately 3875 feet. A column of 35° A.P.I. gravity oil 3875 feet long exerts a pressure at the bottom of approximately 1400 pounds per square inch. Therefore, the column of oil is scarcely sufficient to keep the wells from flowing while drilling. However, a complete pressure-drilling hook-up is installed, for the following reasons:

1. In several wells the column of oil is not heavy enough to balance the formation pressure, so the wells were permitted to flow while being drilled-in.
2. The operators wish to test the productivity of the well at various depths while drilling so high-pressure gas is connected into the standpipe and the well is kicked off.
3. The flow or return is always under control, thus permitting safe operation.

When wells were being drilled-in while flowing, the pressures on the separators were usually 20 pounds per square inch and on the well-head connections about 50 pounds per square inch.

Conclusion

In our organization we are frank to admit that we were surprised to find it is possible to complete wells under pressure control without having to combat pressures more nearly equal to those of the well when closed in. Like many others, we had not taken into full consideration the various factors, such as the choking effect of the drill stem and the loading effects of the pumps, that make it normally possible to flow the drilling wells down to low surface pressures without necessarily maintaining a dangerously low bottom-hole pressure. The fact that it is normally possible to do this, and, by controlling the amount and gravity of the fluid circulated, to largely control the flowing pressure maintained on the sand during the drilling operation, takes completions under pressure control out of the hazardous class of oil-field operations and places them among the more or less routine field operations.



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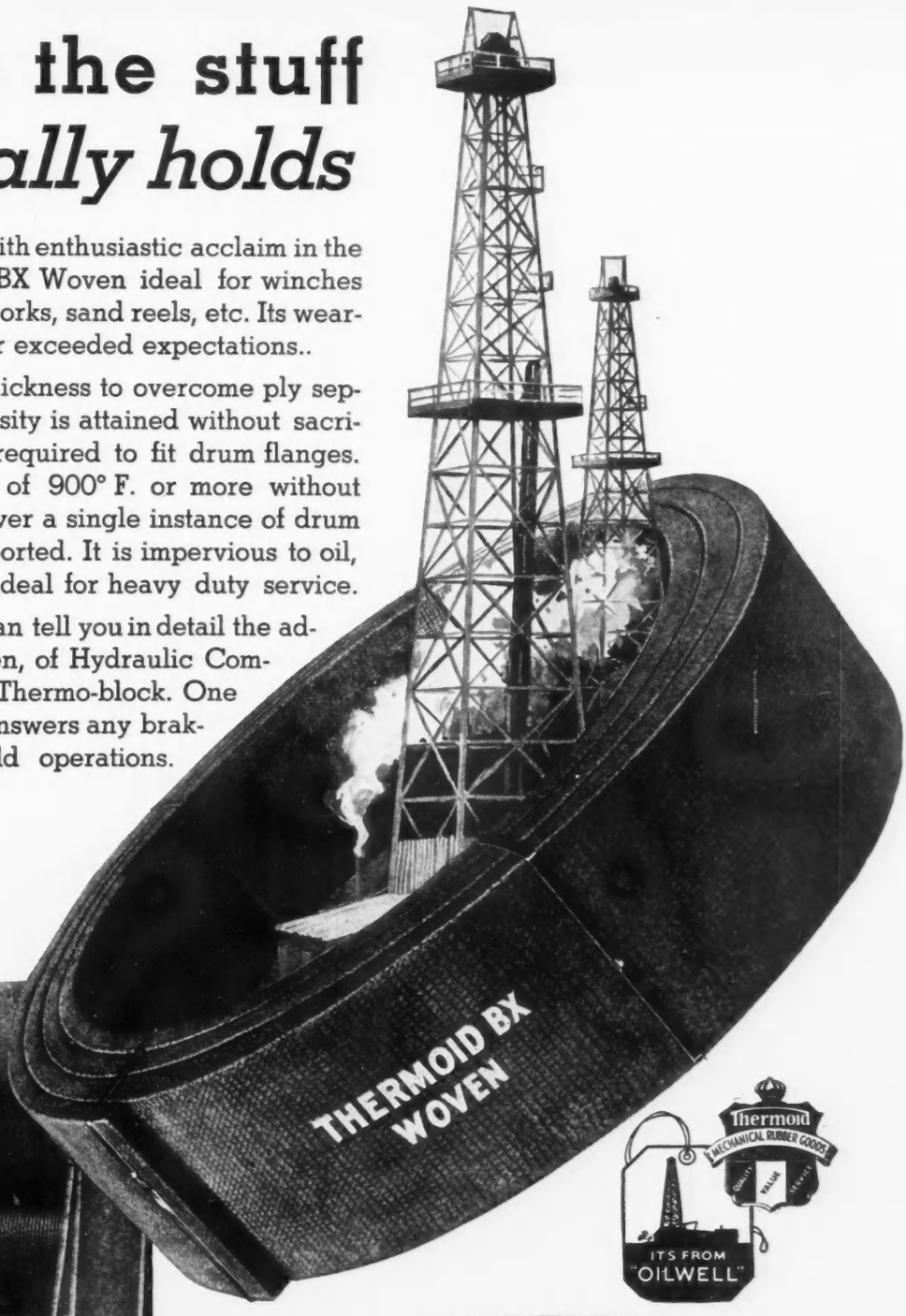

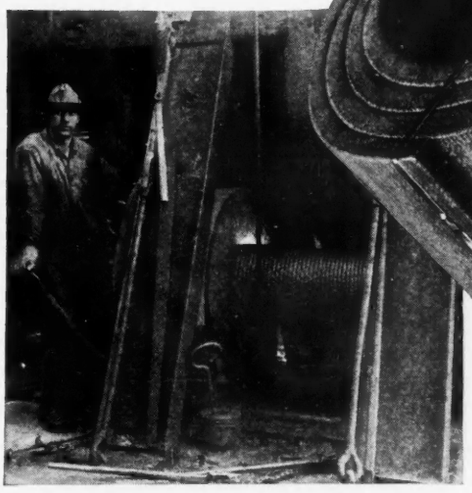

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A Study of Permeability Measurements

AND THEIR APPLICATION TO THE OIL INDUSTRY

By K. H. CLOUGH, Chemical Engineer,
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PART 3

Preparation of Sample for Permeability Measurement

PROPER precautions in selecting samples for permeability measurements must, of necessity, be observed. In the first case, it is essential that the sample selected by the operator be representative of the core from which this sample is selected. Too much stress cannot be laid on this point. It also is necessary, before a sample is prepared, to make note of the bedding plane, as it is desirous to obtain permeability determinations both parallel to and perpendicular to the bedding plane. It is obvious that the portions of the sample which are not homogeneous in their composition should be eliminated, or, in the event of a core predominantly varied or non-homogeneous, that more than one sample be used, since it would be impractical to select a single sample as being representative. The usual practice of operators is to procure one sample for making a permeability determination with the flow perpendicular to the bedding plane and a sample as closely adjacent to the first as is practical, selected to measure the flow parallel to the bedding plane. Considerable care is necessary in selecting these two samples, in order that they may be similar as to their composition. The major improvement, which the writer is inclined to suggest, lies in selecting a cube as a sample in order that both horizontal and vertical permeabilities may be determined on one sample, the horizontal permeability being that permeability taken with the fluid flow in the direction parallel to the bedding plane and the vertical permeability being taken with the flow perpendicular to the bedding plane. By using only the one sample for these two measurements, the operator is assured that the two measurements are comparable. In numerous cases, the sample submitted to the laboratory is not of sufficient size to permit obtaining a sample for making horizontal permeability and vertical permeability determinations, in which case, the vertical permeability determination has usually been ignored. In a majority of cases, it may be said that the vertical permeability of the core is not essentially important; however, the exceptions to this are of utmost importance since in cases where the vertical permeability approaches, or is greater than the horizontal permeability, entirely different technique must be employed in handling the well.

Several methods are available to the operator, all which have been satisfactorily used in preparing the sample from the rough core. Perhaps the most common of these methods is to drill a plug of definite cross-section by means of a small drill press with a hollow drill, in which chip diamonds have been imbedded. Various types of hardened steel have also been inserted, but have not, as a rule, proved as satisfactory as the diamond insets. The necessary procedure in this case is to drill two plugs, one being drilled parallel to the bedding plane and the other at right angles, since it is not possible with this type of sample to determine both horizontal and vertical permeabilities on the one sample. The plugs, after being drilled, may be cut to length either by fracturing or by grinding. It is the practice of some operators to fracture, whereas, other operators contend that grinding is satisfactory. It is the belief of the author that either method is satisfactory when carefully done, since the results obtained using samples cut by the different methods will check as closely as two samples from the same core can be made to check. If the average length of a core sample which has been fractured could be obtained with the degree of exactness that the length of a sample which had been ground to length, the fracturing method would, undoubtedly, be preferred. Care is necessary in grinding due to the possibility of the faces formed becoming plugged by the fine dust formed, thus affecting the permeability of the sample. It is, of course, obvious that when a cubed core is used, the facing of the core should be done by grinding.

In facing the core, it is essential that the core be thoroughly saturated with liquid since, in this manner, the pore spaces are filled with liquid and clogging with fine particles resulting from the grinding operation is prevented. Numerous liquids may be used for this purpose, the only precaution necessary being that the liquid selected be one that will not affect the composition of the core, since this in turn would affect the pore space size and the permeability. It is preferable for the operator to select a liquid that will have a comparatively low boiling point, as it is necessary that all material in the pore spaces of the sample be removed before the permeability determination is made. It is also wise for the operator to use the same liquid for lubricating the drill in making a round plug that is used to saturate the core.

After the core has been faced to the operator's

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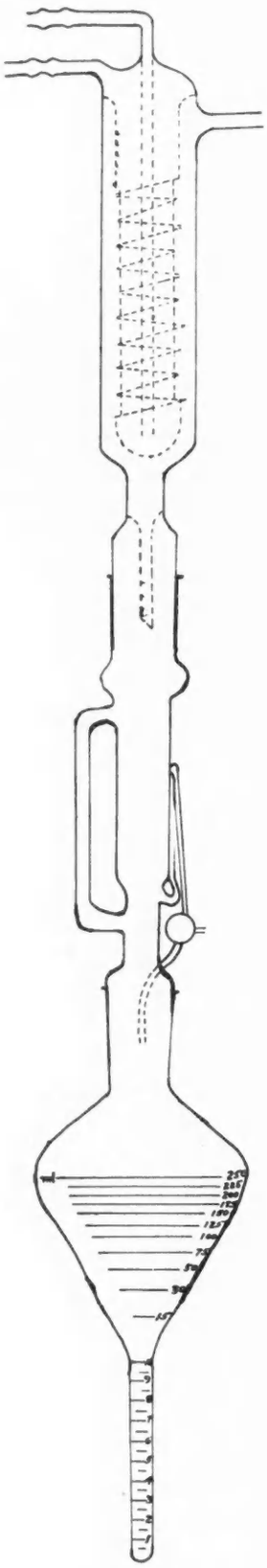


FIGURE 5

satisfaction, it then becomes necessary to remove the liquid contained in order to determine the permeability. The usual practice, in this case, is to extract the liquid from the core with a solvent in a suitably designed extraction apparatus. A modified Soxhlet extraction apparatus is very satisfactory from this standpoint since the extraction may be carried out with very little attention and with a comparatively small amount of solvent. The extraction tube used should be made large enough to extract a number of samples at the same time, as the time required for extraction may run into several hours and the extraction is the slowest part of the entire procedure. If the core sample on which the permeability measurements are to be made is a cube, size 2 x 2 x 2 cm, it would be good practice to use an extraction tube of sufficient size to hold approximately sixteen of the cubes. A larger tube is cumbersome and quite costly. Any laboratory doing sufficient permeability work that this would not take care of their needs, should use a battery of extractors, preferably three for each permeability operator, as it has been found that one operator can just about handle the output of three extractors. Practically any solvent may be used; however, carbon tetrachloride, benzol, ether, and normal pentane are suggested as being very satisfactory.

Figure 5 shows a type of extraction apparatus, which can be satisfactorily used and which will give a volumetric measure of the oil content of the core sample at the same time. The detriment to the use of this extractor is that its design and use to give volumetric measurements does not permit the use of more than one core at a time, as the oil determination thus made would be of no value if more than one core sample were used.

Core Holder and Sample Mounting

Figure 6 shows several types of core holders, which have been used by various companies, for

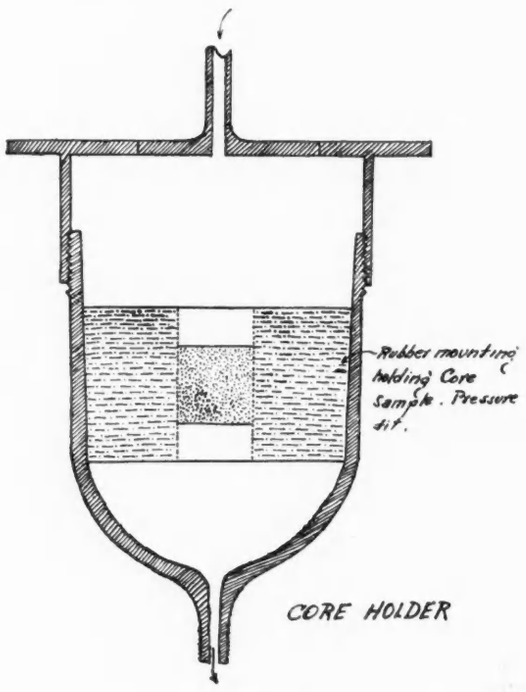


FIGURE 6-A

Tell me thy company, and I will tell thee what thou art.

—Cervantes

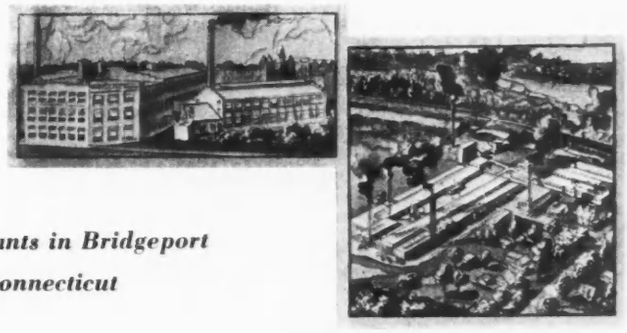
- **AXELSON MANUFACTURING COMPANY**
  Steel and Reading Genuine Puddled Wrought Iron Sucker Rods—Working Barrels.
- **BEAUMONT IRON WORKS COMPANY**
  Rotary and Pumping Equipment.
- **BLAW-KNOX COMPANY**
  Gas Cleaners—Steel Grating—Tracifiers.
- **DONOVAN BOILER WORKS**
  Oil Country Boilers.
- **FOOTE BROS. GEAR & MACHINE CORPORATION**
  Reduction Gears for Pumping Units.
- **JENSEN BROS. MFG. COMPANY**
  Pumping Jacks.
- **JONES & LAUGHLIN STEEL CORPORATION**
  Tubular Goods.
- **LINEAR PACKING & RUBBER CO., INC.**
  Packing for All Needs.
- **MIDWEST PIPING & SUPPLY CO., INC.**
  Welding Fittings.
- **NATIONAL TRANSIT PUMP & MACHINE CO.**
  Steam Pumps—Compressors.
- **J. P. RATIGAN**
  "Sure Grip" line of Pumping Equipment including Grips, Clamps, Beam Hangers, Rod Elevators, Etc.
- **RAYBESTOS-MANHATTAN, INC.**
  Raybestos Rotary Brake Lining.
- **READING IRON COMPANY**
  Reading Genuine Puddled Wrought Iron Tubular Goods.
- **JOSEPH REID GAS ENGINE COMPANY**
  Gas and Diesel Engines—Pumping Powers.
- **REPUBLIC RUBBER COMPANY**
  Transmission and Conveyor Belting—Mechanical Rubber Goods.
- **JOHN A ROEBLING'S SONS COMPANY**
  Wire Lines—Gas and Electric Welding Rods.
- **WALWORTH COMPANY**
  Valves—Fittings—Tools—Lubricated Plug Valves.
- **WHELAND COMPANY**
  Slush Pumps—Swivels—Rotary Tables Steam Engines.
- **WHITLOCK CORDAGE COMPANY**
  Manila Drilling Cable—Bull Ropes—Cat Lines—Waterflex Cordage.

The driller likes Raybestos Lining because he gets instant, velvety response from light pressure on the lever, regardless of the load.

The crew likes it because it doesn't smoke or burn and because it makes their work less hazardous.

The office likes it because it makes more hole for less money, with minimum wear on the steel brake flanges.

RAYBESTOS Brake Lining, like everything else sold at FRICK-REID Stores, is thoroughly dependable . . . You'll like it better than any brake lining you ever used.



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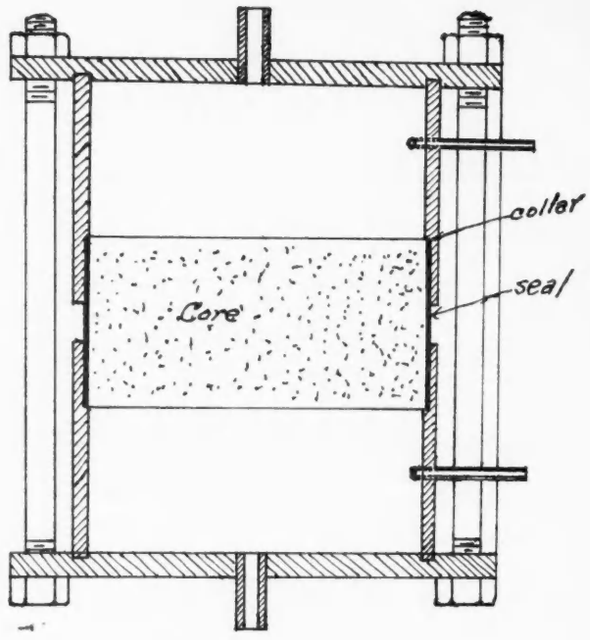
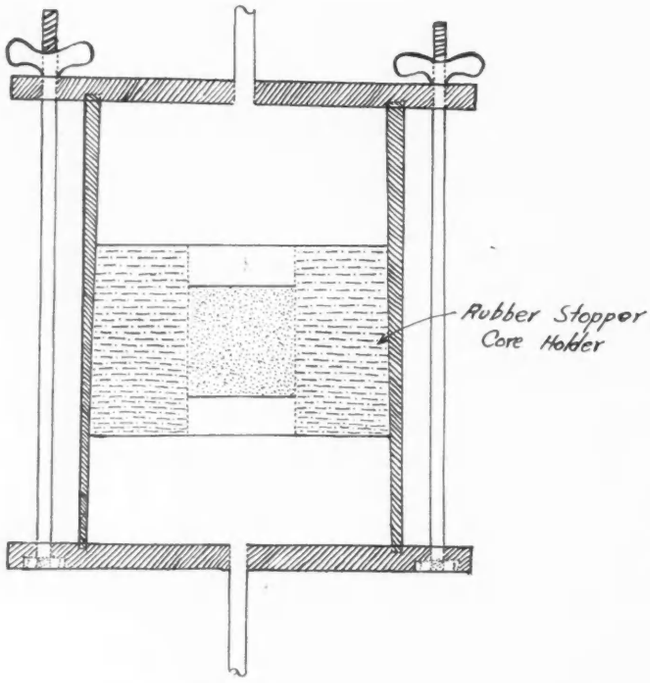
mounting the core sample during the permeability test. Many other types of holders could be used, the requirement being that the holder be so constructed as to seal the sides of the core to prevent fluid channeling along the sides instead of going through the core from end to end. Should sealing wax be used in holding the core in place, care must be exercised so as not to cover the face on either the inlet or outlet side. The rubber stopper type holder, designated as 6-A, which has been used by the author to seal the core in place, has been found to be very satisfactory as the compressive force exerted on the stopper seems to render a tight seal, thus preventing leakage, and, of course, with this type of mounting, the sample may be easily inserted or removed from the holder. Woods metal and sealing wax are also used, their chief disadvantage being in the inconvenience of heating the metal or wax to its melting point and pouring it so as to seal the sides of the sample without covering any of the upper or lower face. Considerable time is required to mount a sample in either sealing wax or Woods metal, and also to remove it at the end of the test, and, of course, the inadvisability of trying to use the same sample for vertical and horizontal flow is evident. For very small and unusually shaped cores, this type of mounting is preferable. The rubber stopper type of mounting, however, for ordinary sized cores seals as satisfactorily as does either the Woods metal or sealing wax, and it has the further advantage of not requiring any time or special precautions, nor does it require the use of gaskets, and it facilitates using a single sample for both horizontal and vertical permeability determinations.



Core Holder

FIGURE 6-C

This is the third of a series of six articles discussing the fundamentals of permeability measurements and the underlying mechanics of such determinations. Part 1 appeared in The Oil Weekly, *October 5, and Part 2 in October 12 issue. Part 4, which describes the equipment used and the design of such instruments, will appear next week.*



Core Holder

FIGURE 6-B

FULL SIZE VIEW OF CORE HOLDER

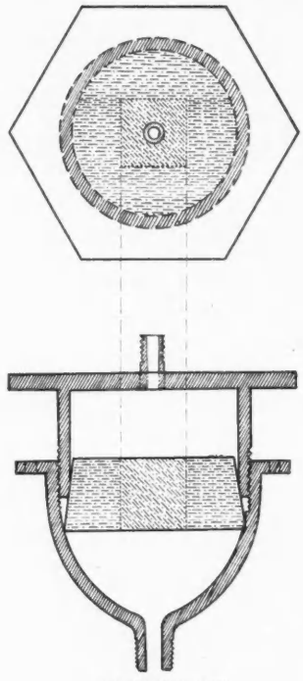


FIGURE 6-D

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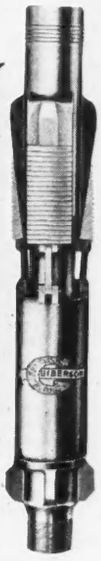

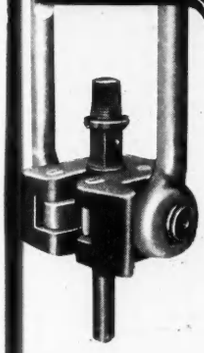

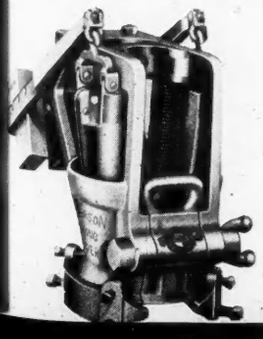

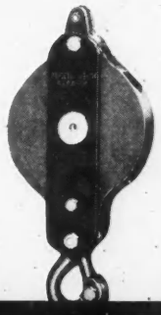

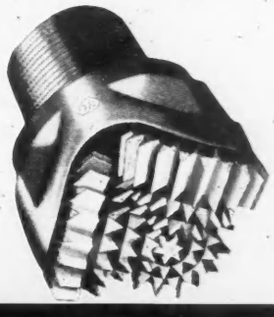

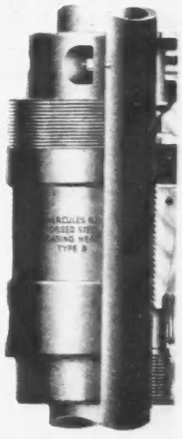

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Markets Steady

BURNING OILS SHOW STRENGTH AND GASOLINE TRADE IS GOOD

THE oil industry's markets appear to be fully as firm as in recent weeks, despite the friction that arose lately over regulating crude production.

Gasoline demand has held up better than many had expected, and the prices remain steady.

Meanwhile, the markets are decidedly strong for the lighter fuel oils for use in home oil burners. Supplies of these burning oils are difficult to obtain.

Kerosene also has been showing pronounced strength for the past several weeks, in sympathy with the light fuel oils.

Crude Market Firm

Even the crude oil market continues firm, despite the recent fears over the fact Texas state officials fixed the October allowable crude output about 75,000 barrels daily above the Bureau of Mines recommendation.

A good barometer of the crude market is the attitude of the major companies toward holding or taking well connections. This barometer indicates a steady market, as the large companies remain content to stay connected with wells of other producers in most sections of the country. Furthermore, they are not hesitating to connect new wells to their pipe lines.

Apparently, some of the large companies would not object seriously to running some crude storage, in addition to taking their current refinery requirements. Other companies, however, have indicated that they would deplore important additions to storage, and that they would be unwilling to buy crude for storage except at prices substantially lower than those now prevailing. Those opposed to seeing the ban lifted on production enough to result in runs to storage have expressed anxiety over the recent action of the Texas officials and over the danger that action may lead to general laxity over the nation in restricting crude output.

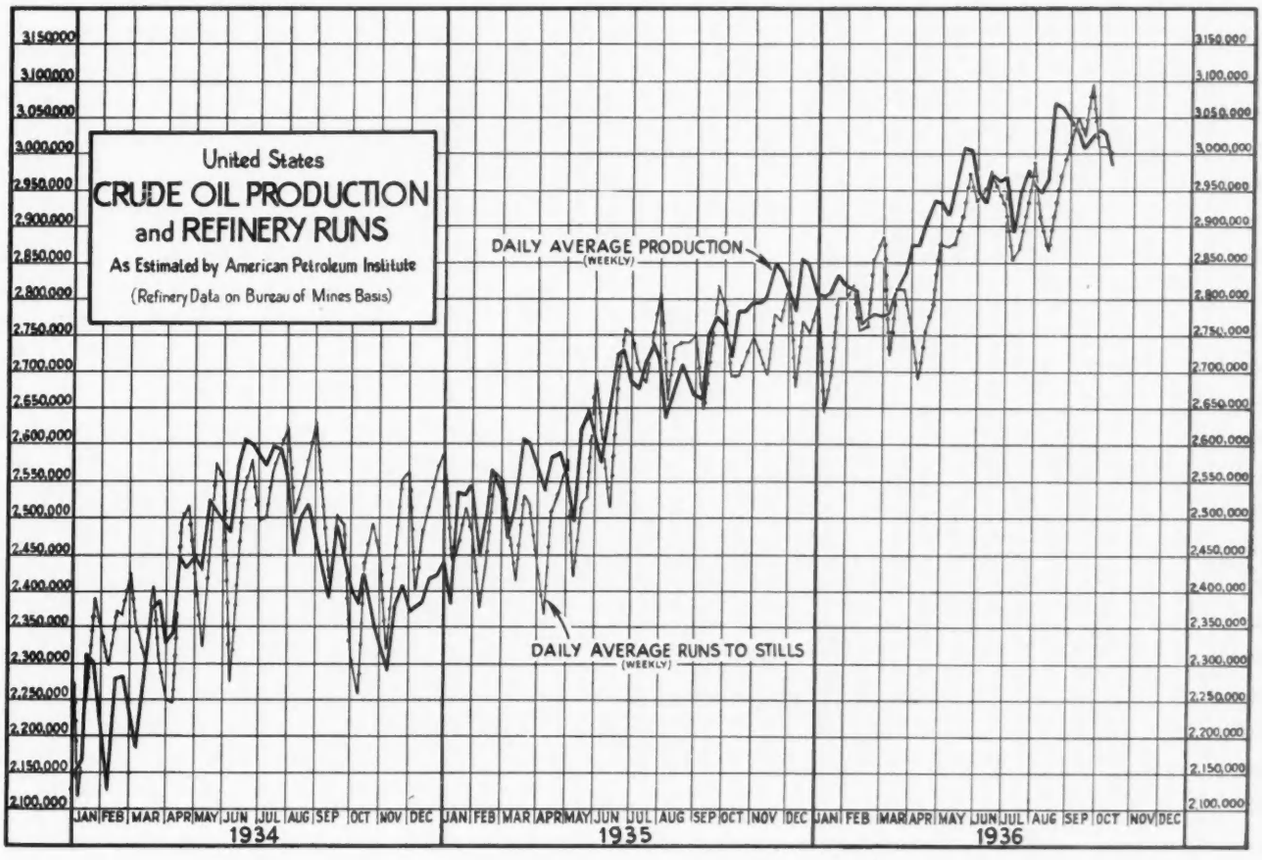
In some quarters it is felt, however, that the Texas Railroad Commission is merely testing the ability of the markets to absorb some additional crude, and that the commission will promptly cut back Texas allowables if the markets are affected adversely.

In connection with the October allowables, the Texas Railroad Commission chairman asserted that the crude stocks of the nation represent only about 90 days' supply, when allowance is made for undesirable oils and for oils always in transit; and he said that the new Texas allowables consequently should not endanger the markets.

Bureau of Mines figures show that the nation's stocks of all oils in above-ground storage are the lowest for about 10 years, in actual number of barrels; and that these stocks, in relation to the current high demand, are the lowest for 15 years, representing only 161 days' supply.

Mid-Continent Prices

Gasoline tank car prices in the Mid-Continent were steady last week at the



same levels that previously prevailed. The U. S. motor gasoline appeared to be priced about as follows f.o.b. Oklahoma refineries: 62 octane and below, 4½ to 4¾ cents a gallon; 63 to 67 octane, 4⅞ to 5⅛ cents a gallon; and 68 to 70 octane, 5½ to 5¾ cents.

The corresponding prices in the Chicago territory were: 4⅜ to 4¾ cents, 4¾ to 5¼ cents, and 5¼ to 5½ cents.

Kerosene prices showed a little improvement in some instances. In both the Oklahoma and the Chicago markets, the 41-43 water white grade was quoted at 3⅛ to 3¼ cents a gallon f.o.b. refineries, and the 42-44 water white grade was priced from 3¼ to 3½ cents.

EAST TEXAS UP

Tyler.—The East Texas gasoline market shows signs of recovering from its early fall price slump, and a slight advance in price is forecast for fully-tendered motor fuels. Majors stepped up their purchases of U. S. motor specification material to 440 cars during the week ending October 4, paying from 4¼ to 4½ cents per gallon. Very little material was available at the latter figure late last week, and stocks are low at the plants.

Current refined-oil prices realized by East Texas plant owners from legally-produced crude have not been adequate to show a profit on operations. A number of efficiently operated plants reported losses in September, owing to the sag in gasoline prices during the latter part of the month. Competition for crude supplies in the East Texas field has not diminished, and refiners are forced to continue plant operations in order to retain well connections, as alternative they can store their current crude runs, but very few of the plants are financially able to carry out such a program. Mid-week report compiled by the Texas Railroad Commission on plant activity reveals that 16 refineries were processing crude. All are equipped with cracking units. During the week ending October 5, East Texas plants were credited with having averaged 55,400 barrels daily on crude runs, including about 10,100 barrels of illicit crude daily.

East Texas Tank Car Shipments

Week Ending October 4, 1936

PRODUCTS—	No. Cars	Estimated Gallons
Gasoline	722½	5,862,017
Fuel Oil	290	2,757,560
Casinghead gasoline	134	1,112,982
Distillate	79	633,996
Gas Oil	32	259,136
Residuum	18	148,030
Kerosene	6½	48,636
Naphtha	3	26,099
Topped Crude	3	24,380
Crude	2	16,187
Total	1,290	10,889,023
Total previous week	1,293	10,898,746
Coastwise	462	.....
Interstate	450	.....
Intrastate	378	.....
Total	1,290	.....

ENLARGE SYSTEM

Magnolia will increase Rodessa facilities

Shreveport.—Original pipe line outlet given the Rodessa field last March by Magnolia Pipe Line Company is now inadequate to handle the combined production and purchases of Magnolia Petroleum Company, and the capacity will be boosted from 18,500 barrels to 30,000 barrels daily. Enlarged capacity will be attained by installing a third pumping unit at Rodessa, and new stations at Dixie and Logansport, located on the company's Arkansas-Beaumont 8-inch trunk line system, which will have a capacity of 30,000 barrels daily when the new boosters are completed late in October. The new station at Dixie will have two electric motor driven centrifugal pumping units, and the Logansport station will be equipped with three reciprocating pumps with gas engines.

JESSE OUTLET

Oklahoma City.—Continental Oil Company filed right-of-way leases with the Oklahoma state department last week for the surveyed pipe line from Jesse pool of Pontotoc County to Oklahoma City.

Construction of a line into this area was first reported a few months ago when Continental Oil Company's King 1, Coal County wildcat test southeast of Jesse on the same geological trend, encountered the productive member of what has been designated as the Atoka series at 800 feet. At that time, plans were for a line into the Coal County where four wildcats were underway.

The increased field potential of Jesse pool, largely through drilling activity of Continental Oil Company which holds the major share of proven acreage, has made a direct outlet desirable. Although it is not known if the present program will include a lateral to King 1 or to the two offsets drilled by the same interest, such a line would be an added spur to Coal County development.

11-MILE LINE

Midland, Texas.—Gulf Refining Company, pipe line division, is extending its crude gathering system in Ward County from its Monahan station and tank farm, SW¼ Section 78, Block A, to the north portion of the Grand Falls district, involving about 11 miles of 6-inch line. The extension will terminate on Gulf Oil Corporation's E. W. Estes lease, Section 38, Block 34, H. & T. C. Ry. Survey, where the latter is carrying on a drilling program from two pay zones.

Summary of Wells Completed in the United States Week Ending October 10, 1936

STATE	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total Completions 1936	Total Completions this Date, 1935
Alabama	....	....	....	....	.....	2	4
Arkansas	....	....	....	....	.....	74	108
California	13	10	....	3	3,830	879	673
Colorado	2	1	....	1	778	12	9
Florida	....	....	....	....	.....	1	....
Illinois	....	....	....	....	.....	4	9
Indiana	11	8	....	3	179	161	170
Kansas	21	16	....	5	19,256	1,297	1,100
Kentucky	10	10	....	....	475	229	137
Louisiana	24	19	1	4	19,074	805	567
Michigan	12	7	2	3	1,165	610	439
Mississippi	....	....	....	....	.....	6	18
Montana	2	2	....	....	66	134	129
New Mexico	11	11	....	....	23,450	448	222
New York	....	....	....	....	.....	....	....
Ohio	64	18	24	22	370	1,507	1,151
Oklahoma	42	30	3	9	66,891	2,178	1,875
Pennsylvania	....	....	....	....	.....	....	101
Texas	284	210	14	60	229,160	9,750	9,316
Utah	....	....	....	....	.....	....	1
West Virginia	34	4	27	3	50	520	377
Wyoming	3	2	1	....	3,100	67	58
Total this week	533	348	72	113	367,844	18,784	16,486
Total last week	492	337	58	97	427,800	....	....
Total this year	18,784	12,613	1,788	4,383	17,794,417	....	....

Comparison of Permits Granted For New Wells

STATE	Week Ending Oct. 10	Total this Mo.	Total this Year	Total this Date Last Year	1935 Year Total
Arkansas	4	9	81	32	100
California	21	44	825	617	629
Louisiana	29	31	918	552	799
Kansas	19	61	1,395	718	1,015
Michigan	18	36	576	399	460
Oklahoma	43	97	1,916	1,431	2,045
Texas	417	588	12,275	7,464	10,550
Total	551	866	17,553	11,213	15,598

UP 56,650 BARRELS

Crude output far above Bureau recommendation

UNITED STATES crude oil production averaged 3,022,475 barrels daily during the week ended October 10. That was 56,650 barrels a day more than in the previous week. It was 180,175 barrels a day more than the Bureau of Mines recommended as the desirable level of daily output during October.

The increase in production as compared with the previous week was the result of substantial gains in Oklahoma, California, Texas, and Louisiana. Kansas and New Mexico showed decreases.

Oklahoma last week averaged 563,675 barrels daily. That was 16,150 barrels a day more than the previous week's rate, and 3,775 barrels a day more than the Bureau of Mines allocation. Oklahoma normally produces above the allocations early in the month but later compensates by cutting back.

California's production last week averaged 589,000 barrels daily, which was 36,000 barrels a day more than in the previous week and 53,700 barrels a day more than the federal quota.

Texas last week averaged 1,168,900 barrels daily, or 11,300 barrels a day more than the preceding week. The new rate was 62,000 barrels a day above the Bureau of Mines recommendation.

Louisiana output rose last week to 238,525 barrels daily from 235,400 barrels the previous week, a gain of 3,125 barrels, and was 49,225 barrels a day above the Bureau of Mines recommendation.

Kansas produced at the average rate of 149,400 barrels daily last week, or 8,400 barrels a day less than in the previous week, and 5,600 barrels a day less than the federal allocation.

New Mexico last week averaged 79,400 barrels a day, or 200 barrels a day less than in the preceding week, but 5,200 barrels a day more than the Bureau of Mines suggestion.

ATLANTIC CHANGE

Dallas, Texas.—Atlantic Oil Producing Company, producing subsidiary in the Southwest for The Atlantic Refining Company, was dissolved, effective October 1, and future activities will be carried on under the name of the parent organization. E. H. Blum, head of the Dallas producing division, was designated Texas agent for The Atlantic Refining Company of Pennsylvania, which received permit to operate in Texas late in September. Atlantic Petroleum Purchasing Corporation and Atlantic Pipe Line Company, purchasing and transportation units, respectively, of The Atlantic Refining Company, will continue for the time being to operate as subsidiaries, according to officials.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Oct.)	ACTUAL PRODUCTION: BARRELS DAILY FOR WEEK ENDING October 10	October 3
TEXAS—			
Texas Panhandle		60,800	61,500
North Texas		61,000	60,100
West Central Texas		27,400	27,200
West Texas		172,400	172,100
East Central Texas		69,500	63,900
*East Texas Field		437,300	436,700
†South Texas		84,800	83,300
†Texas Gulf Coast		255,700	252,800
*Total Texas	1,106,900	1,168,900	1,157,600
OKLAHOMA—			
Oklahoma City		148,300	131,950
Seminole Area		127,575	123,700
Tatums		3,375	3,175
Lucien		12,500	12,250
Fitts		56,800	58,500
Edmond		17,200	11,825
Others		197,925	206,125
Total Oklahoma	559,900	563,675	547,525
KANSAS—			
Ritz-Canton		5,850	5,850
Voshell		3,000	2,975
Nikkel-Hollow		3,775	3,800
Sedgwick		5,000	4,950
Burrton-Haury		13,875	13,975
Lorraine		4,850	6,075
Oxford		3,750	3,800
Others		109,300	116,375
Total Kansas	155,000	149,400	157,800
LOUISIANA—			
North Louisiana		80,325	77,900
Louisiana Gulf Coast		158,200	157,500
Total Louisiana	189,300	238,525	235,400
ARKANSAS	29,600	28,175	28,100
CALIFORNIA—			
Long Beach		66,000	65,000
Santa Fe Springs		45,000	42,000
Huntington Beach		36,500	34,500
Dominguez		23,500	25,000
Inglewood		12,500	11,500
Ventura Avenue		34,000	33,500
Seal Beach		9,800	9,500
Midway-Sunset		65,000	54,000
Elwood		11,200	11,000
Kettleman Hills		77,000	79,000
Mountain View		22,500	22,000
Playa del Rey		12,000	12,000
Others		174,000	154,000
Total California	535,300	589,000	553,000
MOUNTAIN STATES—			
Wyoming	37,300	41,600	42,500
Montana	14,200	15,800	16,600
Colorado	4,300	4,800	4,800
Total Rocky Mountain States	55,800	62,200	63,900
NEW MEXICO	74,200	79,400	79,600
EASTERN STATES	106,300	113,400	112,800
MICHIGAN	30,000	29,800	30,100
*Total United States	2,842,300	3,022,475	2,965,825
*Surreptitiously produced oil in East Texas, not included in above figures, estimated at		15,000	15,000
Grand Total, including surreptitious production		3,037,475	2,998,125

†Coastal section of South Texas is included with Texas Gulf Coast.

Crude Runs to Stills; Stocks of Finished & Unfinished Gasoline and Gas and Fuel Oil, and Cracked Gasoline Production, Week Ended October 3, 1936

(Figures in thousands of barrels of 42 gallons each as reported to American Petroleum Institute)

DISTRICT	Daily Refining Capacity			Crude Runs to Stills		Stocks of Finished and Unfinished Gasoline				Stocks of Gas and Fuel Oil			Daily Charging Capacity of Cracking Units			Cracked Gasoline Production
		Reporting				Finished								Reporting		
	Potential Rate	Total	%	Daily Average	% Operated	At Refineries	Terms. Trans. Pipe Lines	Unfinished in Naphtha Distillates	Total Finished and Unfinished	Gas, Oil & Distillate	Residual Fuel Oil	Total	Potential Rate	Total	%	Daily Average
East Coast	612	612	100.0	513	83.8	5,086	10,112	932	16,130	6,760	5,703	12,463	534	534	100.0	118
Appalachian	154	146	94.8	103	70.5	819	934	288	2,041	341	286	627	79	78	98.7	27
Ind., Ill., Ky.	462	444	96.1	434	97.7	4,428	2,976	780	8,184	3,339	3,106	6,445	349	348	99.7	125
Okla., Kans., Mo.	453	384	84.8	278	72.4	2,938	2,161	443	5,542	1,131	2,410	3,541	256	228	89.1	75
Inland Texas	330	160	48.5	117	73.1	1,127	84	173	1,384	423	1,295	1,718	148	105	70.9	31
Texas Gulf	732	710	97.0	622	87.6	4,768	268	1,888	6,924	4,514	4,132	8,646	399	393	78.5	161
Louisiana Gulf	169	163	96.4	115	70.6	893	451	211	1,555	1,256	1,113	2,369	77	74	96.1	23
North La.—Ark.	80	72	90.0	43	59.7	156	71	50	277	119	240	359	46	44	95.7	10
Rocky Mountain	97	60	61.9	45	75.0	670	.....	89	759	207	565	772	46	39	84.8	11
California	852	789	92.6	515	65.3	8,275	2,305	1,156	11,736	.....	.....	73,462	280	280	100.0	72
Reported	.....	3,540	89.8	2,785	78.7	29,160	19,362	6,010	54,532	.....	.....	110,402	.....	2,123	95.9	653
Estimated Unreported	.....	401	.....	215	.....	2,061	639	378	3,078	.....	.....	2,310	.....	91	.....	37
*Estimated Total U. S. October 3, 1936	3,941	3,941	.....	3,000	.....	31,221	20,001	6,388	57,610	.....	.....	112,712	2,214	2,214	.....	690
*Estimated Total U. S. September 26, 1936	3,941	3,941	.....	2,990	.....	30,911	19,216	6,345	56,472	.....	.....	112,504	2,214	2,214	.....	690
U. S. B. of M., *Oct. 3, 1935	.....	.....	.....	†2,746	.....	27,177	18,325	5,682	51,185	.....	.....	110,123	.....	.....	.....	†604

* Estimated Bureau of Mines basis. † October, 1935, daily average.

Faltering Control Unsettling

[*Continued from page 14*]

1936, following the usual seasonal trend, in advance of larger fuel oil consumption.

New Low Mark Set

The nation's crude stocks had declined by September 26 to a new low mark for recent years, totaling but 294,568,000 barrels. The total on hand August 29 had been 301,786,000 barrels, indicating a decrease of about 7,000,000 barrels during September.

Total stocks of finished and unfinished gasoline dropped down to 56,472,000 barrels September 26, 1936, according to the American Petroleum Institute, but they rose back by October 3 to 57,610,000 barrels. These figures indicated a net reduction of about 1,500,000 barrels during September. Finished gasoline stocks actually reported to the A.P.I. totaled 47,427,000 barrels on September 26 and had increased to 48,522,000 barrels October 3. These figures also indicate a net decrease in September of about 1,500,000 barrels.

This situation on gasoline stocks appears quite satisfactory, in view of the current all-time high level of gasoline consumption. As compared with the 47,427,000 barrels of finished gasoline stocks reported on September 26, 1936, there were reported totals of 42,976,000 barrels September 28, 1935, and 43,850,000 barrels on hand September 29, 1934. The stocks at the end of September, 1936, were 10.4 percent greater than at the corresponding date a year ago. But that increase is justified by the gain that has occurred in gasoline demand. The Bureau of Mines showed that domestic gasoline demand in the first seven months of 1936 was more than 11 percent greater than in the similar period of 1935; and the demand in July, 1936, was over 13 percent higher than in July, 1935.

Drilling Curtailed

In line with the other favorable results during September, the industry's drilling activity was of an encouraging nature, showing a decrease from that in the previous month. The recent difficulties in controlling crude production have been attributed in part to excessive drilling. But in September well completions in the United States were cut down to an average of 65.4 wells daily, as compared with 70.4 wells daily in August. The September activity was well under that of May, when the average of 71.9 completions per day was the highest of the year and of the recovery period.

Oklahoma City.—A suit was filed in federal court October 6 against the Oklahoma tax commission, challenging the state's right to collect a tax on income derived from the interstate transportation of oil. The suit seeks return of $12,377 tax, allegedly based on interstate commerce income in 1935, which the company paid under protest several weeks ago.

FLEET ENLARGED
Continental Oil Co. buys bi-motor transports

Burbank.—Continental Oil Company, Ponca City, Oklahoma, will soon add two new all-metal transports to the list of transportation facilities it has available for personnel use, it was revealed this week at Lockheed Aircraft Corporation, Burbank, California. The first plane has been completed and the second will be ready for testing within two weeks.

The planes are six-passenger, twin-engine crafts of the latest design and construction. They are the newest development of the Lockheed Corporation and are known as the "Lockheed 12." Engines have a top speed of nearly 230 miles per hour and will cruise at 213.

Special cabin appointments in the Conoco planes feature a comfortable couch, bridge table, reading lamps, radio and individual ash trays. The cabin, finished in light green upholstery, is equipped with a modern ventilating system and is heat insulated.

Baggage compartments are provided in the nose of the Lockheed and in the rear of the fuselage, behind the lavatory. In the pilots' compartment is a completely equipped instrument board with compass, two-way radio, and gyro-horizon and directional gyro.

Austin, Texas.—The Texas Railroad Commission has called a hearing on the Heyser field in Calhoun County, to be held in Austin on October 20. At that time the commission will receive evidence upon which to base a rule for the spacing, drilling, completion and operation of wells in the new field.

CRUDE OIL PRICE QUOTATIONS

(Figures Represent Basic or Flat Prices—Revised to October 9, 1936)

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Oklahoma-Kansas	28-$0.94	2¢	40—$1.18	1- 9-36
N. and N.-C. Texas	28— .84	2¢	40— 1.08	1- 9-36
Texas Panhandle				
Gray County	34— .86	2¢	40— .98	1- 9-36
Carson-Hutchinson	34— .81	2¢	40— .93	1- 9-36
West Texas				
Ector, Pecos, W'kler Crane, Upton, Howard and Glasscock	29— .76	2¢	36— .90	1-14-36
West Central Texas	28— .84	2¢	40— 1.08	1- 9-36
East Central Texas	28— .91	2¢	40— 1.15	1- 9-36
East Texas	*1.15			1- 9-36
Talco	* .60			4-15-36
Texas Gulf Coast				
Anahuac-Dickinson	30— 1.04	2¢	40— 1.24	1- 9-36
Conroe	35— 1.24	2¢	40— 1.34	1- 9-36
Tomball	*1.30			1- 9-36
Cleveland	*1.00			1-11-34
†Goose Creek, Hull Liberty, Orange, Pierce Junction, Moss Bluff, Raccoon Bend, Sour Lake, Spindletop, Sugarland, West Columbia, Humble, Rabbs Ridge	Below 17— .88	2¢	34— 1.22	1- 9-36
South and S. W. Texas	Below			
Refugio (Light)	17— .88	2¢	34— 1.22	1- 9-36
Refugio (Heavy)	* .90			1- 9-36
Saxet (Light)	*1.22			10-1-36
Saxet (Heavy)	*.90			1- 9-36
Mirando	*.85			1- 9-36
Pettus	*1.25			1- 9-36
Salt Flat	*.97			1-14-36
Darst Creek	*.97			1-14-36
Placedo (Heavy)	*.85			4- -36
Placedo (Light)	*.95			4- -36
Port Lavaca	*.97			
Plymouth	*.90			12-17-35

* All gravities—flat rate.
† Gulf Coast prices as posted by Humble Oil & Refining Company.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Arkansas				
El Dorado (Light) and Rainbow	25— $.78	2¢	40—$1.10	1-10-36
El Dorado East Field and Smackover	*.75			1-10-36
North Louisiana	25— 0.78	2¢	40— 1.10	1-10-36
Urania	*.97			1-10-36
South Louisiana	Below			
Lockport	19— .92	2¢	34— 1.22	1- 9-36
Iowa Cameron Mds.	19— .82	2¢	34— 1.12	1- 9-36
Rocky Mountain States				
Salt Creek	29— .94	2¢	40— 1.18	1-10-36
Elk Basin	*1.18			7-20-36
Grass Creek (Light)	*1.18			7-20-36
Grass Creek (Heavy)	*.58			1- 9-36
Big Muddy	*1.11			1- 9-36
Rock Creek	*1.12			1- 9-36
Sunburst	*1.15			6- 5-36
Lance Creek	*.90			1- 9-36
Osage	*1.08			
Cat Creek	*1.07			8-25-33
Cut Bank	*1.35			6- 3-36
Pondera	*1.05			9-29-33
Hog Back, N. M.	*1.00			9- 8-33
Lea County, N. M.	*.75			9-29-33
Mid-West States				
Lima	*1.15			9-18-36
Illinois	*1.23			1- 9-36
Princeton	*1.23			1- 9-36
Western Kentucky	*1.23			1- 9-36
Pennsylvania				
Bradford	*2.45			1-13-36
Sw. Pa. Pipe Line	*2.17			1-13-36
Eureka Pipe Line	*2.12			1-13-36
Buckeye Pipe Line	*1.97			1-13-36
Corning Grade	*1.32			9-18-36
Michigan				
Central Michigan	*1.32			9-16-36
Muskegon	*.70-1.00			12-31-32
Canada				
Petrolia	*2.10			9- 9-33
Oil Springs	*2.17			9- 9-33

* All gravities—flat rate.
‡ Average price, all oil sales being to small refineries.

MAJOR PRICE CHANGES

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Cut °4
September 6, 1935	Up 5	.....	.....
October 29, 1935	Up 15	.....	.....
November 1, 1935	.....	.....	Up °28
November 18, 1935	Up 15	.....	.....
December 6, 1935	.....	.....	Up °9
January 9, 1936	.....	Up 10	.....
January 13, 1936	Up 15	.....	.....
February 26, 1936	.....	.....	Up '5

CRUDE PRODUCTION TAXES

Oklahoma—Five percent of gross value less royalty interest.

TEXAS—Two cents or 2 percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and ⅜ of 1c per barrel.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

* All gravities—flat rate.
° Signal Hill 26 gravity.
' Seal Beach 26 gravity.

CALIFORNIA OIL PRICES

(All gravities above those quoted take highest prices of that field. Effective February 26, 1936)

Gravity	Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Elwood Terrace	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Fe Springs	New Hall McKittrick Kern River Round Mountain	Mountain View	Midway-Sunset Buena Vista Hills Elk Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$.80	$.79	$.78	$.79	$.80	$.76	....	....	$.80	$.76	$.76	$.77	$.78	.....	$.70	....	.70	›.76	$.70	....
15-15.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	70	70	.70	....
16-16.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	70	70	.70	....
17-17.9	.80	.79	.78	.81	.80	.76	....	....	.80	.76	.76	77	.78	....	.70	....	.70	.70	.70	....
18-18.9	.80	.79	.78	.84	.80	.78	....	....	.82	.76	.76	.77	78	....	.70	....	.70	.70	.70	....
19-19.9	.82	.79	.82	.87	.84	.81	....	....	.85	.76	.78	77	.78	....	.70	$.70	.74	.74	.71	$.70
20-20.9	.85	.79	.85	.90	.88	.84	....	....	.88	.78	.82	77	80	....	....	.70	.78	.78	.72	.70
21-21.9	.88	.79	.89	.93	.93	.88	....	....	.91	.80	85	77	84	78	.....	.73	.82	.82	.74	.70
22-22.9	.92	.82	.92	.96	.98	.92	....	....	.93	.84	89	79	.88	.78	.....	.77	.87	.86	.78	.72
23-23.9	.95	.86	.96	.99	1.02	.96	$.84	....	.96	.88	93	82	.92	.78	.....	.80	.92	.90	.82	.76
24-24.9	.99	.91	1.00	1.02	1.06	99	.88	....	99	91	96	85	96	.82	.....	.84	.97	.94	.86	.79
25-25.9	1.03	.95	1.03	1.05	1.11	1.03	.93	....	1.02	95		.89	99	.86	.....	.88	1.01	.98	.90	.83
26-26.9	1.06	1.00	1.07	1.09	1.16	1.06	.98	....	1.05	98	....	.92	1.03	.90	.....	.91	1.06	1.02	....	....
27-27.9	1.10	1.05	1.11	1.12	....	1.10	1.03	....		1.02	....	.96	1.06	.95	.....	.95	1.10	1.06	....	....
28-28.9	1.14	1.10	1.14	1.15	....	1.14	1.07	....		1.06	....	.99	1.10	.99	.....	.99	1.15	1.10	....	....
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	....	....	1.09	....	1.03	1.14	1.03	.....	1.02	1.20	1.14	....	....
30-30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17	F.O.B	....	....	....	1.07	1.17	1.08	.....	1.06	1.25	1.18	....	....
31-31.9	....	....	....	1.24	Line	1.24	1.22	Ship	....	....	....	1.11	1.21	1.12	.....	1.09	1.29	....	....	....
32-32.9	....	....	....	1.27	....	1.27	1.27	....	Kettleman Hills			1.14	1.25	1.16	.....	1.13	1.34	....	....	....
33-33.9	....	....	....	....	....	....	1.32	$1.28		1.19		1.18	1.28	1.20	.....	1.17	1.38	....	....	....
34-34.9	....	....	....	....	....	....	1.37	1.32	....	1.23	....	1.22	1.32	1.21	.....	1.20	.....	....	....	....
35-35.9	....	....	....	....	....	....	1.42	1.35	....	1.27	....	1.25	....	1.29	.....	....	.....	....	....	....
36-36.9	....	....	....	....	....	....	1.46	1.39	....	1.31	....	1.29	....	1.33	.....	....	.....	....	....	....
37-37.9	....	....	....	....	....	....	1.51	1.43	....	1.35	....	1.32	....	1.37	.....	....	.....	....	....	....
38-38.9	....	....	....	....	....	....	1.56	....	....	1.39	....	1.36	....	1.42	.....	....	.....	....	....	....
39-39.9	....	....	....	....	....	....	1.61	....	....	1.43	....	1.40	....	.....	....	....	.....	....	....	....
40-40.9	....	....	....	....	....	....	1.66	....	....	....	....	1.43	....	.....	....	....	.....	....	....	....

WORLD DEVELOPMENTS and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Venezuela

REVIVAL OF DRILLING INCREASES OUTPUT

Field activities and production in Venezuela, having been hampered somewhat this year by rather acute labor difficulties, are in full swing again with current programs pointing toward increased operations for the last quarter of the year.

Production, already above what it was for the first three quarters of 1935, notwithstanding curtailment part of the time in certain areas due to unrest, probably will exceed the figure of 148,893,000 barrels recovered in Venezuela during 1935. This latter figure, incidentally, represented an increase of 12,500,000 barrels over the 1934 output.

Lago Petroleum Corporation has initiated a large drilling campaign to counteract Venezuela Gulf Oil Company and Venezuelan Oil Concessions, Limited's campaign for flush production in Maracaibo Lake basin. Lago Petroleum Corporation is thus far concentrating on the Lagunillas area, where it has been very successful.

Venezuelan Oil Concessions, Limited, recently put three additional strings of tools to work. One has been assigned to exploratory drilling on Rosario 2, Rosario field. A second is drilling a crestal location at Manuelas, while the third string has been assigned ordinary exploitation drilling in connection with wells T-37, 25, 36, and locations Am and GB in Tarra field. In addition to the above schedule, the company has ordered a new portable rig from the United States for drilling "step-out" wells at Cabimas field, giving this operator about 16 active strings of tools at the end of September.

Venezuela Gulf Oil Company has put on another string of tools at Lagunillas, where the company's immediate program calls for 23 wells.

During the interim July 18-August 15, Venezuelan fields reported 33 completions, all but two of which were producers.

Standard Oil Company of Venezuela completed 5 wells in Quiriquire field at depths ranging from 2400 to 3170 feet. These averaged better than 900 barrels initially, resulting in addition of about 4600 barrels flush production.

El Aguila loading oil cases at Tampico, Mexico, on a freighter bound for Brazil

In the same period, 15 completions, all producers, were reported at Lagunillas field. Nine of these were Lago Petroleum Corporation wells and the remaining 6 were completed on leases of Venezuelan Oil Concessions, Limited. The Lagunillas completions ranged in depth from 2038 feet to 4780 feet, only four of them, however, going to below 4000 feet. Initial gauges on the wells ranged from 140 to 950 barrels.

Lago Petroleum Corporation accounted for 4 completions in La Rosa field between July 18 and August 15. All were less than 3000 feet deep. Their combined flush totaled 607 barrels.

In Cabimas field Venezuelan Oil Concessions, Limited, completed R-37 for 315 barrels at 2035 feet, while in Mene Grande field Caribbean Petroleum Company completed 4 wells for an aggregate flush yield of 6435 barrels.

Eastern Venezuela wildcat abandonments included Standard Oil Company of Venezuela's Chapapotal 1, depth unannounced, and Tocuyo Oilfields, Limited's, Riccito 1, dry at 5822 feet.

CZECH IMPORTS

Imports of petroleum products into Czechoslovakia in the first half of the current year registered an appreciable increase as compared with the corresponding period of 1935, a report to the Commerce Department from Prague shows.

Arrivals of crude gasoline advanced from 60,400 metric tons in the first six months of 1935 to 85,123 tons in the January-June period of 1936. Imports of heavy lubricating oils (chiefly from the United States) increased from 6067 tons to 6421 tons; refined gasoline from 7872 to 11,316 tons; and petroleum and stearin pitch from 4163 to 8116 tons, it was stated.

In contrast to the above figures, imports of crude petroleum into Czechoslovakia in the first half of this year declined to a total of 72,771 metric tons compared with 87,676 tons in the 1935 half year, while receipts of "other light mineral oils" decreased to 929 tons as against 2192 tons, according to the report.

Oklahoma City.—The application of Hall-Briscoe, Inc., for a retroactive allowable and potential on the Francis 1, in the Oklahoma City field, was taken under advisement by the Oklahoma Corporation Commission October 6. The company seeks approximately 35,000 barrels back allowable which it claims is due the well from July 1 to September 16, during which time completion was delayed because of collapsed casing.

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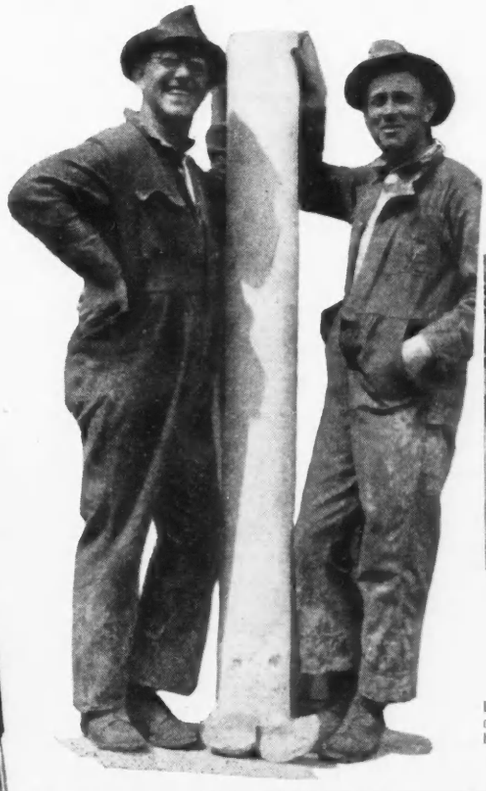

Left: Solid limestone core 8½" in diameter and 6 feet long, recovered by the Dean Core Drill equipped with rock type head.

More samples of exceptionally soft cores recovered by the Dean Core Drill.

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TEXAS HEARING

Austin, Texas.—The Texas Railroad Commission is seeking to obtain for the statewide hearing on October 14, nominations from Texas purchasers showing their probable needs for crude oil for the next six months.

The notice of hearing issued by the commission asked for nominations for the month of November only, but forms sent out with the notice provided space for data for the entire six months' period.

Reports had begun to come in late last week, and the commission hoped to have all of the data available by next Wednesday when the hearing is held.

A large attendance is anticipated at the hearing because Commissioner Thompson will have returned from a conference in Washington on data submitted by the Bureau of Mines on market demand for crude in the various states.

Tulsa.—Members of the Tulsa Geological Society will hold their regular Meeting Monday, October 12 at 8 p.m., in the Tulsa building. R. D. Reed, president of the American Association of Petroleum Geologists will be the speaker. His subject will be announced later.

OKLAHOMA

Completions

Company, Well and Location	Initit. Prod. Bbls.	Depth
BECKHAM COUNTY—		
Carter, Davidson 1, csw sw 2-9n-25w (pb 3580)	¶12	4285
CADDO COUNTY—		
Magnolia, Niles 8, sw nw nw 36-6n-10w	10	3384
CARTER COUNTY—		
Jones Bros., Dillard 7, sw se ne 22-4s-2w (pb 2380)	2	2805
The Texas Co., A. E. Cathey 1, se se ne 6-5s-1w (pb 4375)	101	4559
COTTON COUNTY—		
English Drlg. et al, Wilson 1, nw nw se 7-4s-11w	*	1514
CREEK COUNTY—		
Sinclair Prairie, Gilcrease 12, se sw se 33-17n-12e	480	2255
Klingensmith & Anthony, Gilcrease 1-A, sw se se 33-17n-12e	264	2282
W. C. McBride, Fears 2, nw sw ne 3-15n-7e	60	4048
GRADY COUNTY—		
John Graham et al, Castleberry 1, sw se nw 8-5n-7w	*	1909
HUGHES COUNTY—		
Rogers O. & G., Bernheart 1, se sw sw 5-6n-8e	52	2757
George Orr et al, Morgan 1, ne se sw 6-7n-9e	lcn.	abd.
JACKSON COUNTY—		
Gulf Oil, Dosher 1, ne ne ne 14-1n-20w	*	2210
JEFFERSON COUNTY—		
Bridwell Oil, Spring 6, sw nw sw 24-6s-6w (otd 1669)	*	1750
OKFUSKEE COUNTY—		
Chapman et al, Cudjo 1, se se se 25-10n-8e	¶2-127	1756
Evens & Morris, Livily 1, se se nw 36-10n-8e	35	1772
Canadian Dev., Panosky 1, sw se nw 7-11n-9e (pb 3990)	*	4005
OKLAHOMA COUNTY—		
W. S. Key, Inc., Pryor 1, ne se sw 15-12n-3w (otd 6339)	167	6501
British-American, Culbertson 1, ne ne ne 27-12n-3w	¶14-11,791	6449
Knox Garvin et al, Woodbridge 1, nw se se 27-12n-3w	¶17-6016	6495
Inland Dev., Harn 1, se se nw 27-12n-3w	¶17-12,049	6439

*Failures; †Junked; ¶Million cu. ft. gas.

Fitts Interest Center

LATIMER COUNTY WILDCAT WILL TEST NEW AREA

WEEKLY STAFF REPORT

Tulsa.—Center of activity for this part of Oklahoma during the past week was, as usual, the Fitts field in Pontotoc County. Magnolia Petroleum Company's Norris 6, SWc SE 21-2n-7e, came into production October 5, flowing 575 barrels of oil in 1 hour through casing. It topped the Mayes sand at 3230 feet; topped the Hunton lime at 3480 feet, and the Viola lime at 3825 feet, and set 7-inch casing at 3944 feet. It topped the Bromide at 4303 feet, and after drilling to 4385 feet, acidized with 10,000 gallons. Potential was 2535 barrels with 4,750,000 cubic feet of gas.

Company, Well and Location	Init. Prod. Bbls.	Depth
Slick-Urschel, Meeker 1, nw nw nw 29-13n-3w (pb 6660)	748	6757
Marathon Oil, Dahl 12 (Acct. 1), ne sw se 31-14n-3w	¶15-15,364	6687
OKMULGEE COUNTY—		
Downing, Colbert 8-A, cne nw 1-15n-14e	35	1355
Dodge, Herrod 10, ne se ne se 17-15n-14e	10	869
OSAGE COUNTY—		
Lewis Prod., 9, ne sw nw 28-24n-7e.	148	2723
Kewanee O. & G., Alfred 1, nw sw ne 26-26n-6e (pb 2896)	933	2899
Carter et al, McKinley 5, sw se sw 35-26n-6e	¶2¼-284	2878
PAYNE COUNTY—		
R. L. Kemp et al, Logaus 1, nw sw nw 21-17n-5e (pb 4028)	¶3½	4038
PONTOTOC COUNTY—		
Moore, Benton 1-A, nw ne nw 32-2n-7e	¶1¾-4482	4405
H. W. Lee, Weatherly 1, nw se nw 24-1n-7e	lcn.	abd.
Fleetborn Drlg., Morris 4-A, sw sw se 20-2n-7e	¶1-2376	3773
Moore, Moody 3-A, ne se se 22-2n-7e	¶2½-3124	3898
Skelly, Park College 15, ne nw ne 28-2n-7e	5856	3635
POTTAWATOMIE COUNTY—		
Oklahoma Oil, Bruno 4, se se ne 25-7n-4e	150	4251
SEMINOLE COUNTY—		
Vierson, Jones "A" 6, nw se sw 2-6n-6e	lcn.	abd.
Sinclair Prairie, House 4, ne nw se 2-7n-6e (pb 4378)	*	4384
Pure Oil, Harjo 2, nw sw ne 11-7n-6e	150	4292
Magnolia, Harjo 1-B, se ne ne 14-7n-6e (otd 4353) (pb 4230)	*	4408
Ross Oil, Hollis 1, ne se ne 17-9n-7e.	1750	3452
The Texas Co., Janey 4, nw ne sw 11-7n-6e (pb 4541)	26	4653
STEPHENS COUNTY—		
Dillingham, Hollums 1, ne ne ne 36-2n-5w (pb 948)	*	985
Bridwell Oil, Nigh 3, nw se sw 11-2s-8w	*	2112
Hartman & Hamilton, Robinson 1, nw nw nw 15-3s-5w	148	1492
TILLMAN COUNTY—		
Gulf Oil, O'Neil 1, nw nw sw 5-1s-19w	153	2635
TULSA COUNTY—		
Swift Bros., Anthers 3, sw nw sw 13-19n-10e	¶6¾	1805

*Failures; †Junked; ¶Million cu. ft. gas.

E. H. Moore et al's Schauers 12-A, SE NE NW 29-2n-7e, received a 24-hour potential of 2225 barrels of oil from the second Wilcox sand. The first Wilcox was topped at 4265 feet, and the second Wilcox was had at 4320 feet. After drilling to 4355 feet, the well flowed 591 barrels of oil in six hours.

A new location was made by Caloma Oil Company of California. It is the W. H. Brents 1, SE NE SW 4-1n-6e, 2½ miles southwest of Fitts pool proper. The test has been spudded and will be carried down 4800 feet unless a higher pay formation is found. The company has assembled a block of 2500 acres in the area.

Carter Oil Company's Harden 8-A, SEc SW 30-2n-7e, established a potential of 3255 barrels of oil in 24 hours from a total depth of 4335 feet.

Magnolia Petroleum Company's Wooley 6, SEc 21-2n-7e, flowed 534 barrels of oil in one hour through casing, and was then shut in for potential. The Hunton lime was topped at 3471 feet; the Sylvan shale at 3798 feet, and after drilling to 3802 feet, the well was acidized with 5000 gallons.

Blackstock Drilling Company's Daniels 3, NE SE SW 21-2n-7e, received a 24-hour potential of 2492 barrels of oil and had an estimated 2,225,000 cubic feet of gas. The flow was 727 barrels of oil in 6 hours following acidization first with 5000 gallons and later with 10,000 gallons. Production was coming from 4282 feet in the bromide.

In the Jesse pool of Pontotoc County, interest centered around Continental Oil Company's House 3, NW NE SE 12-1n-7e, which flowed 280 barrels of oil in 12 hours from between 4715 and 4720 feet in the Wilcox sand. At 4655 feet in the McLish sand, the well had flowed a half bailer of oil and 500,000 cubic feet of gas in 12 hours. It continued to flow while drilling from 4714 to 4719 feet, and made 282 barrels of oil in another 12 hours. Water was found at 4720 feet and filled the hole from the total depth of 4731 feet. Operators are plugging back to try for production from the upper sand.

Mid-Continent Petroleum Corporation's Statler 1, SEc SW 2-1n-7e, topped the Sylvan shale at 4091 feet and had the Viola lime at 4165 feet. After coring from 4228 to 4236 feet, 8 feet of lime with an odor of oil and gas was recovered. It was drilling below 4281 feet in the lime.

Oil men are watching for the possibility of a new producing area in Oklahoma as Jones & Soper et al made location for a 6500-foot test in SEc 15-5n-18e, 4½ miles north of Wilburton, in Latimer County, in the east central part of the state. Cellar is being dug for the test which, if successful in finding commercial production, will open a new drilling area for that part of the state. Reports show that many of the active companies have large blocks of acreage in the area.

Amerada Petroleum Corporation, Stanolind Oil & Gas Company, and The Atlantic Refining Company's Riddle 1, NWc NE 2-10n-5e, in the Stout sector of northern Seminole County, made 497 barrels of oil in 24 hours on pump. Production was coming from between 4621 and 4628 feet in the Wilcox sand.

In Coal County, Sinclair Prairie Oil Company's Culver 1, NEc SW 16-1n-8e, in the Clarita area, topped the McLish sand at 5536 feet. A core taken from 5608 to 5615 feet had a recovery of dolomite and sand, showing an odor of gas. Four feet of dense lime was recovered in another core taken from between 5673 and 5676 feet, and coring was going ahead at 5681 feet.

A show of oil was had at Continental Oil Company's King 1, NE SW NE 26-1n-8e, which topped the Hunton lime at 4354 feet, and cored from that depth to 4361 feet. It was coring at 4369 feet.

Sinclair Prairie Oil Company's Hoyt 2-B, NE NW NE 5-14n-3e, west of Chandler in Lincoln County, drilled in the Skinner sand from 4410 feet, and got a good show of oil in the Hunton lime at 4805 feet. The well was drilling below 4890 feet in a dry formation.

Skelly Oil Company has started rigging up rotary tools at Sporn 1, NW NE SW 21-17n-3e, south of Perkins in Lincoln County, and plans to drill deeper into what field men say will be a rich oil sand. It was at 4546 feet several weeks ago when it halted to fish for lost tools. Later, when a bridge was encountered, gas headed up and blew the tools out of the hole and partially wrecked the derrick. It is just south of a seismographed block belonging to Stanolind Oil & Gas Company and Amerada Petroleum Corporation.

Carter Oil Company's Cook 6, SE NW NE 9-25n-6e, in the South Burbank area of Osage County, flowed 722 barrels of oil in 8 hours after being drilled to 2700 feet in the Burbank sand.

Joe Hayes et al's Durkee 1, SEc SW 21-10n-11e, near Weleetka in Okfuskee County, had the Gilcrease sand from 2561 to 2567 feet, and blew out 9,000,000 cubic feet of gas and oil spray, and was shut in to run pipe.

Two failures were plugged and abandoned in Tulsa County during the week. They were Duffield et al's Evans 4, NEc SW SE 11-21n-12e, and the same interests' Evans 12, C SW SE SE 11-21n-12e. Both wells were in the Bird Creek pool of northern Tulsa County.

Oklahoma operators completed 45 wells during the past week, 30 being for oil for an initial production of 66,891 barrels. Three gas wells were completed for a total open flow of 22,250,000 cubic feet of gas. Nine starts resulted in failures and there were 3 abandoned locations.

Scouts in Oklahoma reported 43 new locations for the state, with Pontotoc County leading with 7. Osage County made 6 reports, Creek 5, Okfuskee 4, and Coal, Hughes and Seminole counties reporting 3 each. Two new locations were reported from Lincoln and Okmulgee counties and Carter, Jefferson, Noble, Oklahoma, Pawnee, Pottawatomie, Stephens and Tillman counties made 1 report each.

TWO CRESCENT WELLS
Make good showings on potential tests

Oklahoma City.—The Crescent pool of Logan County again claimed some of the attention this week as two recently completed wells there were given potentials. The Texas Company's Denny 4, NW NE SE 33-17n-4w, which stopped at 6274 feet in the second Wilcox sand, made the following flows: during the first hour it flowed 1168 barrels of oil and had 32,000,000 cubic feet of gas; 562 barrels of oil and 31,000,000 cubic feet of gas the second hour; 630 barrels of oil and 27,000,000 cubic feet of gas the third hour, and 496 barrels of oil and 26,000,000 cubic feet of gas the fourth hour. It was given an official potential of 13,504 barrels of oil.

Sinclair Prairie Oil Company's Phillips 2, SEc NW 28-17n-4w, an edge well, tested the Wilcox sand from 6506 to 6538 feet and was rated good for 1449 barrels of oil daily with 2,500,000 cubic feet of gas.

Continental Oil Company's McConnell 4, NE SW SE 28-17n-4w, is a new producer which is showing signs of gusher production. It had the second Wilcox sand at 6184 feet, got softened sand at 6258 to 6266 feet, and on a 30-minute test, made 500 barrels of oil in 20 minutes with the drill pipe in the hole. Gas was estimated at 30,000,000 cubic feet. The well was then shut down and when reopened made 300 barrels of oil per hour for 1½ hours and was shut in. Operators plan to drill deeper.

The possibility of north and south extensions of the Moore pool of Cleveland County were blighted during the week as 2 key-tests found salt water. Stahl Petroleum Company's Schilstra 1, SW NE NE 17-10n-2w, at the extreme north end of the field, drilled the plug at 7462 feet, the total depth, and started filling with salt water. Operators planned to plug back to 6740 feet and test shows in the upper horizons.

At the south end of the pool, Denver Producing Company et al's Keller 1, NWc NE 34-10n-2w had salt water at 7409 feet, the total depth. It was also planned to plug this well back to 7386 feet and test the dolomite.

Continental Oil Company's Young 11, NE SW NW 31-14n-3w, in the Edmond pool of Oklahoma County, was shot with 120 quarts and made 750 barrels of oil per hour for 2 hours. Potential later was established at 14,239.26 barrels of oil for 24 hours. During the first 4 hours of the test, the well produced 2,373.21 barrels of oil with gas averaging 16,500,000 cubic feet. The new producer, the largest on the lease, raises the potential for the Young tract to 104,911 barrels of oil.

Activity in the north Oklahoma City oil field, which had sunk to a new low in the past few weeks, had a slight increase early last week as work was started at two new locations. Cellars were started at British American Oil Producing Company's Elliott 2, block 9, Elliott addition, and Clark Company started Cook 2, block 2, Arlington Heights addition.

The long-standing wrangle between the state school land commission and H. H. Wegener, oil operator, concerning the awarding of 3 tracts on the university hospital appeared to have been cleared up late October 7. The commission rescinded its action giving all 3 tracts to Wegener, and awarded him 2, for which he paid a bonus of $25,000 and $61,000 respectively. The third tract went to Bryan Oil Company for $20,200. All bids carry one-eighth royalty for the University of Oklahoma. The leases were voted by the school land commission on the recommendations of the university board of regents.

DEEP TEST SHOWING
Fox pool may have second Hunton well

Ardmore. — Gulf Oil Corporation's Johnson 8, C SW SW 28-2s-3w, in the Fox pool of western Carter County, may have the second producer in the deep horizon in that area. It had the Hunton lime more than a week ago at 7361 feet, and when stopped at 7497 feet, reported showings. Six-inch casing was run to 7361 feet, and after the plug is drilled, the Hunton lime will be acidized. It was waiting on equipment according to last reports.

Newest producer for the North Tussy pool of southwestern Garvin County is Cox & Hamon's Davis 5, SE SW SE 32-1n-3w. It had broken Tatums sand from 2246 to 2645 feet, and stopped at 2889 feet in shale and ran 2½-inch tubing at 2290 feet. A swabbing test at this depth through tubing made 50 barrels of oil in 3 hours and 30 minutes. It went dead and was put on gas lift, following which it flowed through casing and made 101 barrels of oil in 6½ hours. During a 24-hour test through open tubing, the well made 252 barrels of oil. Later, the potential established was 245 barrels in 24 hours. It is estimated good as a 200-barrel well.

Failing to find production in the discovery sand at the North Tussy field, Magnolia Petroleum Company has started Burr 3, NEc 31-1n-3w, which will be a test of the lower horizons there. Early last week the well was drilling below 3005 feet in shale. It is possible that development of the field will be slowed until this well is completed, since an erratic condition has been proved by recent wells drilling there.

Carter Oil Company's Ivey 1, SWc 33-1n-3w, drilled to 2825 feet where salt water was encountered. Eight-inch pipe was being run to 2455 feet, and operators planned to plug back and test a solid oil sand which was had between 2450 and 2503 feet.

Near Pauls Valley, much interest was being evidenced in Tide Water Oil Company's Sturdevant 1, NEc NW 28-4n-1e. It had the Viola lime at 4148 feet and was drilling ahead below 4220 feet with nothing showing.

Cellar has been dug for Cox & Hamon's Davis 4, NE SW SE 32-1n-3w, one of the numerous locations staked near the close of August, but were waiting for developments in the area before starting operations.

In Love County, Sinclair Prairie Oil Company's Stockton 1, SEc SW 26-6s-2w, in the Oswalt area, was to start testing on or about October 9. It was plugged back from 8583 feet to 6914 feet. Operators were to test broken sands had from 6890 to 6914 feet.

ASPHALT ROADS
Road officials boost oil paving in session

Tulsa.—Under the auspices of the Western Petroleum Refiners Association, Tulsa was host October 8 and 9 to delegates attending the fifth national Road Oil & Asphalt Congress, meeting in the Tulsa hotel. The meetings for October 8 got under way with Emby Kaye, vice president of Skelly Oil Company as chairman, and members of the congress were welcomed by Ben O. Angel, commissioner of streets, Tulsa.

Following the opening address, a paper on "Asphalt in the Paving Industry" was read by Leroy M. Law, chief chemist for the Shell Petroleum Corporation. Law covered the entire history of asphalt and its many uses, stating that "Your speaker today has taken as his subject one of our oldest engineering materials for, having served mankind approximately 5000 years in a wide variety of uses, asphalt has well earned this designation." Law went on to outline and describe briefly some of the principal forms in which it occurs and outlined methods of its refinement and application in the asphalt paving industry.

The afternoon session, with H. G. Nevitt, manager of the asphalt department of Socony-Vacuum Oil Company, White Eagle division, as chairman, heard talks by Fred G. Allison, Arkansas Highway Commission; L. L. Marsh, Kansas Highway Commission, and Dr. Sidney Born, of the engineering department, University of Tulsa. A buffet supper and entertainment were offered in the evening.

Van T. Moon, Oklahoma highway engineer, and George M. Mullins, Skelly Oil Company, were chairmen for the dual sessions held Friday, October 9. Speakers for the morning session were Brant Holme, Salt Soil Road Bureau; R. C. Shappler, Missouri Highway Department; A. O. Teckemeyer, who presented motion pictures under the auspices of the Austin-Western Road Machinery Company, and during the luncheon, Hon. Wilburn F. Cartwright, representative in Congress for Oklahoma, who spoke on "Federal Financing of Highways."

In the meeting of the afternoon, members were addressed by H. S. Gillette, of the United States Bureau of Public Roads, Fort Worth, and E. B. Donohue, assistant state highway engineer of Montana. Summation of each session was delivered by Frank S. Gilmore, highway engineer, Asphalt Institute.

Promise New Pools

WILDCATS AND EXTENSION TESTS FEATURE ACTIVITY

WEEKLY STAFF REPORT

Wichita.—The possibility of opening several new pools and the completion of many new wells resulted from activity in Kansas last week. In Stafford County, Skelly Oil Company's Kipp 1, SEc NE 27-25s-14w, northwest of Pratt, may give the county a gas field. Kipp 1, which is on a trend southward from big pools in Ellsworth, Rice, Barton and Stafford counties, topped the Lansing lime at 3598 feet, and encountered a flow of gas estimated at 100,000 cubic feet at 3709 feet. The flow increased to 200,000 cubic feet from 3712 to 3714 feet, and was boosted to 800,000 cubic feet after the tools found another pocket between 3725 and 3727 feet. Drilling is going ahead below 3750 feet, but no oil has been found as yet.

Rice County continued to be among the most active in the state. An apparent extension of the Chase pool came last week as Roy Ramsey et al's Hilton 4-A, SEc SW 6-20s-9w, swabbed 35 barrels of oil in 1 hour from Siliceous lime at 3297 feet. The well later was completed for 918 barrels of oil natural.

Sinclair Prairie Oil Company's Specht 3, NW SE SE 20-20s-10w, in the Raymond pool, filled 775 feet with oil in 8 hours from Siliceous lime at 3295 feet. The production followed acidization with 1000 gallons and the crew was running tubing rods, preparatory to testing. Specht 3 is an east offset to the Atlantic Refining Company's Scott 1, which recently extended the pool ½-mile southwest.

Opens New Area

Weaver Drilling Company et al's Doran 1, NEc SE 13-19s-10w, northwest of Chase, was completed for 194 barrels of oil natural from Siliceous lime at 3211 feet. It has opened a new oil producing area, the twenty-fourth for Rice County and has been named the Doran pool in honor of the land owner. The well is 2 miles west of production in the north end of the Chase pool.

Douglas et al's Patton 1, SWc 5-21s-7w, 2 miles northwest of the Hauschild pool, flowed 75 barrels of oil in 15 minutes when opened, and 143 barrels in the next hour. It had drilled to 3337 feet and was shut in for separator repairs. When opened later in the week, the well flowed 159 barrels of oil in 6 hours from conglomerate. It has been accounted as a discovery well and the pool named Saxon after the nearby town of that name.

Two producers have been completed by John H. Tatlock and others on the Berscheidt lease in NWc 6-20s-10w, in the Silica pool. Their No. 9 pumped 2153 barrels on a potential test from Siliceous lime at 3280 feet. Their No. 10 made 410 barrels of oil after being acidized at 3320 feet in the same formation.

Mid-Continent Petroleum Corporation's Wood 1, NEc 4-20s-10w, was tested for 21 hours on a potential test after topping Siliceous lime at 3307 feet and drilling to 3315 feet. It made 1801 barrels of oil during the test, and on a later 24-hour gauge, was estimated at 1993 barrels. Another test is to be taken at an early date.

In the Rice County sector of the Burrton field, Slick, Pryor & Lockhart et al's Moran 4, SWc NW NW 14-18s-10w, was given a potential of 575 barrels of oil. In the Silica pool, Mid-Continent Petroleum Corporation's Matzek 9, SE NW SE 25-19s-11w, appeared as a potential producer when it filled 1800 feet with oil in 2 hours. The hole filled when plugs were drilled. The total depth is 3299 feet, but operators report the well may be deepened.

The Derby Oil Company added a new Hunton lime well to the north end of the Graber pool of McPherson County October 5, and found what is supposed to be commercial production at Arnold 1, SWc 16-21s-1w, one of the farthest north wells in the field. It was reported 2000 feet of oil was standing in the hole later in the week, coming from the Hunton lime topped at 3312 feet. First oil was encountered at 3333 feet and at 3337 feet oil rose in the hole and drilling was stopped. Arnold 1 is an east offset to the same operators' Goering 1, recently completed for 850 barrels of oil from the Hunton lime.

Seventh Peter Producer

Lario Oil & Gas Company's Peter 2, NWc 24-20s-11w, on the discovery lease of the Peter pool in Barton County, was completed last week. The well filled to the top of the casing with oil in 2½ hours from Siliceous lime at 3372 feet, just 6 feet into the pay formation. It is the seventh producer in the Peter pool which proved to be erratic, following completion of the initial producer, as both the north and west offsets to the discovery well were completed as dry holes. The new well has been estimated as good for 1500 barrels of oil daily. It later pumped 2063 barrels of oil natural on a potential test.

Republican Gas Company's McLean 2, in Section 25-17s-11w, in the Bloomer pool, farthest northeast producing lease in that area, has been completed for 483 barrels of oil from the Siliceous lime at 3293 feet.

Republican et al's Penny Wann 1, SEc 13-15s-20w, some 16 miles southeast of Hays in Ellis County, pumped 420 barrels of oil in 22½ hours from the basal sand at 3658 feet. It was then shut down for storage and connections. It is the third strike in the basal sand in Ellis County, and opens the twelfth pool for the area. It will be officially known as the Penny Wann pool.

In Sumner County, E. B. Shawver was acidizing Erker 13, CSW SW 33-31s-1w, an east offset to Slick, Pryor & Lockhart's Murphy 3 which was completed a week ago for 2155 barrels of oil from the chat, making it the largest producer in the Wellington pool. The new well appeared to be good for approximately 15 barrels of oil per hour natural from the chat at 3670 feet, but production is expected to get an increase to about 1700 barrels of oil following the acid treatment. Top of the chat was found at 3642 feet, and oil filled the hole at 3655 feet. It was carried on down to the total depth of 3670 feet. It is interesting to note that the Wellington pool has 44 producers and no dry holes to date.

Deepest Drilling Test

The deepest test now drilling in Kansas is Olson Oil Company & Watchorn Oil & Gas Company's Morrison 1, SEc SW 17-32s-21w, northwest of Protection, in Clark County. Morrison 1, was drilling below 6011 feet, underneath the Siliceous lime which had no show of oil. The same interests also drilled another Morrison 1, CNW NE 20-32s-1w, between 1929 and 1931, which was carried to 6906 feet, believed to be the deepest test ever drilled in the state.

A possible extension of the Sullivan pool of Russell County was being watched for at John Braden et al's Peterson 1, NWc, 12-14s-15w. Located ¾-mile southeast of production in the pool, the well filled about 2800 feet with oil after drilling to 3294 feet in the lime, which was topped at 3291 feet. The Texas Company must drill a north offset to the new well, which will be Anschultz 5, SWc, 1-14s-15w.

Braden & McClure's Herbel 1, NEc NW 35-14s-14w, south of the Guerney pool, pumped 225 barrels of oil from the Gorham sand at 3168 feet.

W. C. McBride, Inc., was to complete Wooldridge 2-A, SW NE SE 16-27s-7w, in the lime after failing to find commercial production in the Mississippi lime. A test of production was made at 3891½ feet, and again at 3898 feet, but the well made more water than oil. It is located northeast of Kingman in that county.

A. E. Lloyd et al's McKinley 1-B, SEc NW 33-31s-3e, in the Weatherford pool of Cowley County, was completed and flowed 1481 barrels of oil on a potential test from Siliceous lime at 3302 feet.

Slick, Pryor & Lockhart's McKowen 1, NEc SW 18-32s-1w, a wildcat which has been followed with considerable interest, topped Siliceous lime at 4421

feet, and drilled to 4277 feet where it will be abandoned as a dry hole. It is near Wellington in Sumner County.

Wilcox Oil & Gas Company's Neufeldt 1, SWc NE 12-23s-1w, in the Haury pool of Reno County, was completed for 1109 barrels of oil daily after being plugged back to 3380 feet in the chat. It previously had been good for less than 500 barrels of oil daily.

In Harvey County, Tom Palmer et al's Haury 1, CNE NE 11-23s-2w, in the Warkentine pool, was completed for 549 barrels of oil from chat at 2996 feet. It is a southeast diagonal offset to Palmer's McBirney 1, completed some two weeks ago for 2085 barrels of oil, the largest well in the field.

Carter Oil Company's Ogden 6, SWc 26-17s-9w, in the South Lorraine pool of Ellsworth County, has been completed for 1398 barrels of oil from the Siliceous lime at 3174 feet.

Both completions and first reports from Kansas for last week are considerably below the average. As the number of drilling wells has not materially changed, the completions reported from the state next week will swing back to or above normal. An increase in new locations is also to be expected for the next few weeks to be followed by a gradual decline as winter draws near.

Kansas completed 21 wells during the past week, 16 of which were oil wells with an initial production of 19,256 barrels. Five were failures. No locations were abandoned and no wells were completed for gas.

Of the 19 starts reported by Kansas scouts, Rice and Russell Counties account for 10, having 5 each. Reno County reports 2 locations, and Barton, Cowley, Ellis, Greenwood, Harvey, McPherson and Sumner Counties report single locations.

TEXAS PAYS MOST

Washington, D. C.—Approximately one-third of all collections from the taxes on the production and processing of oil during the fiscal year 1936 was contributed by the Texas industry, it is disclosed by figures made public October 9 by the Treasury Department.

Reduction of the tax during the fiscal year from one-tenth to one-twenty-fifth of a cent per barrel resulted in a reduction of total collections from $1,759,789 to $1,163,754, it was pointed out by Commissioner of Internal Revenue Guy T. Helvering, and made impossible any comparison of the figures for the purpose of determining the extent to which oil activity increased.

Other collections affecting the oil industry were the $9,793,995 collected from the 4 percent tax on pipe line transportation, comparing with $9,479,721 for 1935; $177,339,587 from the 1 cent per gallon tax on gasoline, against $161,532,292, indicating an increase in consumption of 580,729,500 gallons; and $27,102,831 from the 4 cents per gallon tax on lubricating oil, against $27,800,248.

Operations Steady

MONUMENT OPERATORS ARE EXPECTING QUOTA RETURN

NEW MEXICO

WEEKLY STAFF REPORT

Hobbs, N. M.—Lea County maintained the gain in field operations recorded during the past month by adding an equal number of new locations to offset the 11 completions listed for the current week. Monument field was credited with 8 wells, while the remainder were in the original Eunice dolomite lime area.

Allowable production of the Monument field was pegged at the 12,000-barrel level on October proration schedule issued by the Oil Conservation Commission, while other Lea County areas served by major pipe lines received a nominal production increase. Effective October 1 the commission advanced the production quota of the state 1700 barrels to 81,200 barrels daily, or 7000 barrels above the mark recommended by the Bureau of Mines. Monument field was cut back 4681 barrels to a top level of 12,000 barrels daily on September 16 in order to equalize production with nominations of the two major pipe lines serving the area. Prior to the reduction the field was averaging 88.7 barrels daily per well, but new completions added during the latter part of September lowered the average crude yield per well to 59.4 barrels daily on the October schedule. Allowable production surrendered by Monument operators pending the return of a normal market outlet is being distributed to other prorated wells in Lea County, but the latter will be reduced sharply when the situation at Monument is relieved.

Monument operators are confident that the extra production restrictions will be removed shortly, and are proceeding with routine developments in taking care of offsets. This field accounted for six new locations the past week, including two by Sun Oil Company on its D. L. Laughlin 80-acre lease. The latter is situated immediately east of Empire Oil & Refining Company's D. L. Laughlin 1, C NW SE 5-20s-37e, which was reported last week as having flowed 316 barrels per hour through casing with drill pipe suspended in the hole from regular lime at 3830-3861 feet. A string of 3-inch tubing was installed at 3855 feet, but empty tankage was not adequate for a gauge through tubing. The company has skidded rig one location south from its big producer to drill Laughlin 2, which will force a number of progressive offsets. On opposite sides of Monument townsite, Gulf Oil Corporation has started work on Harry Culp 2-B, C NE SE 31-19s-37e, while D. A. Williams 2, C SW SE 29-19s-37e, offsets production on the north. Ohio Oil Company is starting work on Oscar Barber 5, C NW NW 5-20s-37e. The latter's Barber 3, C SE SW 32-19s-37e, responded to treatment with 3000 gallons of acid solution in lime at 3895 feet with a flow of 68 barrels hourly through 1-inch choke on tubing.

Amerada Petroleum Corporation, discoverer of the Monument field, boosted its total completions to 54 in completing State 2-L, C SE NW 20-19s-37e, flowing 502 barrels oil in 20 hours through 1-inch tubing choke from lime at 4020 feet, or 335 feet sub-sea, and State 2-R, C SE SW 29-19s-37e, flowing 232 barrels in 16 hours through 1-inch choke at 3930 feet. Both wells kicked off without being acidized. The former showed a gas/oil ratio of 583 feet per barrel while the other tested 854 feet per barrel. Tide Water Oil Company's

KANSAS

Completions

Company, Well and Location	Initit. Prod. Bbls.	Depth
BARTON COUNTY—		
National Ref., McLean 3, se sw se 25-17s-11w	1562	3295
Gulf Oil, Zahorsky 3, sw nw se 14-20s-11w	1717	3287
I.T.I.O., Burchart 2, cs½ s½ ne 14-20s-11w	147	3314
BUTLER COUNTY—		
Vickers Pet., Brenner 1, cwl e½ se nw 2-25s-3e	*	2735
ELLSWORTH COUNTY—		
Davis et al, Edwards 4, sw nw se 34-17s-8w	1124	3260
MARION COUNTY—		
Empire, Barcell 1, nw nw se 31-20s-2e	*	3186
McPHERSON COUNTY—		
Dickey et al, Goering 2, sw se se 17-21s-1w	824	3344
Ohio Oil, Decker 3, se se se 20-21s-1w	938	3327
RENO COUNTY—		
Shell et al, Haferman 2, cse 6-19s-9w	17	3270
RICE COUNTY—		
Empire, Jansen "C" 1, ne sw nw 3-18s-8w	986	3272
Skiles et al, Edwards 3, ne ne ne 3-18s-8w	*	3422
Continental et al, Gibson 2, ne se sw 24-18s-8w	1918	3220
Hartman & Blair, Schartz "B" 1, se ne se 33-19s-10w (otd 3320)	1586	3335
Tatlock, Berscheidt 10, se ne nw 6-20s-10w	401	3320
Derby Oil, Theede 1, nw nw nw 14-21s-7w	1154	3385
RUSSELL COUNTY—		
Empire, Crawford 7, ne sw sw 2-14s-15w	1754	3293
Hartman & Blair, Rouback 4, sw se nw 2-14s-15w	3048	3059
Witt, Witt 5, se ne se 3-14s-15w	1160	3294
Armer et al, Maier 1, ne nw ne 20-15s-14w	*	3317
SUMNER COUNTY—		
Stelbar, Earker 5, cs½ s½ nw 33-31s-1w	920	3676
Palmer et al, Hull 1, nw se sw 9-32s-1w	*	3754

*Failures; †Junked; ¶Million cu. ft. gas.

D. L. Laughlin 1, C SE NW 4-20s-37e, one location west of the easternmost producer in the field, was converted into a prolific well when deepened to 3905 feet or 337 feet sub-sea, where it gauged 620 barrels of oil in 9 hours on 1-inch tubing choke, and was holding at 51 barrels per hour on the tenth hour. It failed to attain a steady flow after using an aggregate of 8000 gallons of acid solution in 3 applications at 3880 feet. The Texas Company's J. R. Phillips 4, C SE NW 6-20s-37e, an inside location in the south central portion of the field, proved to be a sub-normal producer in making an initial yield of 125 barrels daily with 5 percent BS&W from lime at 3910 feet, or 337 feet sub-sea. It was treated with acid twice, and set packer on tubing because of the low gas volume.

Eunice field added 3 completions, all offsetting production, and an equal number of new tests authorized the past week were assigned to the northwest sector. New operations follow: Atlantic Refining Company's State-Catron 3, C Lot 5, 6-21s-36e; Gulf Oil Corporation's Orcutt-State 6, C Lot 15, 6-21s-36e; and The Texas Company's Aggies-State 4, C NW SE 31-20s-37e.

In the East Jal sandy-lime area, Argo Royalty Company's B. T. Lanehart 1, SW SE NE 21-25s-37e, was due to reach the projected oil level late last week, having progressed to 3147 feet, with an elevation of 3071 feet. It is carrying about 9,000,000 feet of dry gas production from the upper lime series, according to Stanley Cohagan, Fort Worth, who has charge of operations. A. R. Eppenauer, Fort Worth, is preparing to start a test ¾-mile to the northeast on the F. S. B. Stuart 110-acre lease in the N½ 22-25s-37e, that was farmed out by Amerada Petroleum Corporation. Location for the test will be NW NE NW 22-25s-37e. In the South Jal area, The Texas Company, Columbian Carbon Company and Amerada Petroleum Corporation, joint owners of federal permits, have moved in rig to drill Chas. W. Shepherd 2-A, C SW NW 6-26s-37e.

A semi-wildcat was included in the two new operations allotted the South Eunice sandy-lime belt last week. J. E. Farrell & Company spudded Walden 1-A, C SW NW 15-22s-37e, located more than one mile from production, and is also drilling Walden 1 in the southwest corner of the same section. Both tests are on acreage farmed out by Amerada Petroleum Corporation, which has adopted a policy of subleasing its short term holdings in the sandy-lime belt because of heavy drilling, obligations pending at Monument. Samedan Oil Corporation is moving in materials to drill S. B. Hughes 2, C NW SE 4-23s-37e, an east offset to a small well being completed by the company after nitro shot at 3611 feet.

OUTLETS BOUGHT
Gulf expands its retail facilities in Toledo

Toledo.—One of the most important recent developments in the oil industry in Toledo, Ohio, was the acquiring of a bulk station and 16 retail outlets of Johnson Oil Refining Company by Gulf Refining Company in Toledo.

The bulk station and 2 retail stations were purchased outright, while other stations were acquired on leases taken over by Gulf Refining Company.

The change-over will be made immediately and gives Gulf Refining Company more than 100 outlets in the Toledo area.

NEW MEXICO
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LEA COUNTY (Eunice Field)—		
Gulf, State-Graham 2-E, c nw se 6-21s-36e	250	3885
Humble, J. D. Knox 5, c se se 10-21s-36e	800	3885
Repollo Oil Co., Berryman 1, se sw se 11-21s-36e	275	3882
LEA COUNTY (Monument Field)—		
Amerada, State 2-L, c se nw 20-19s-37e	2000	4020
State 2-R, c se sw 29-19s-37e	1500	3930
Empire, D. L. Laughlin 1, c nw se 5-20s-37e	7500	3861
Gulf, H. Culp 1-B, nw nw se 31-19s-37e	900	3895
Ohio, O. Barber 3, c se sw 32-19s-37e	3500	3895
Shell, J. W. Cooper 1-B, ne ne nw 4-20s-37e	3600	3898
Texas Co., J. R. Phillips 4, c se nw 6-20s-37e	125	3910
Tide Water, D. L. Laughlin 1, c se nw 4-20s-37e	3000	3905

*Failures; †Junked; ¶Million cu. ft. gas.

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CHIKSAN OIL TOOL CO. LIMITED

FULLERTON, CALIFORNIA — GULF ENGINEERS INC., HOUSTON, TEXAS

Winkler Wildcat

MAY CONNECT TEXAS AND NEW MEXICO PRODUCTION

WEEKLY STAFF REPORT

Midland, Texas.—Flowing production from a semi-wildcat in northern Winkler County and less than ½ mile south of the New Mexico border was attained last week by Bert Fields, A. W. Cherry and D. J. Finley's L. Daugherty 1, SWc NW Section 3, Block C-23, PSL Survey, from sandy-lime zone at 3204 feet, or 268 feet sub-sea. On preliminary gauge through 3-inch drill pipe the well flowed 7 barrels of 31.4 gravity pipe line oil per hour. Acid treatment of the soft lime pay at 3120-3157 feet resulted in a flow of 50 barrels per hour on 3-hour gauge through ¾-inch choke. Gas volume was rated 2½ million feet daily. The well is on a 200-acre lease farmed out by L. H. Wentz on an overriding royalty basis, and is situated 2 miles due north of production in the Leck area, and about equal distance south of a small producer in the South Jal field, New Mexico. Eventual linking of the two fields is most probable. Owners of the semi-wildcat scored two important extensions to the Sayre and Halley fields, Winkler County, earlier this year. The late strike is expected to start an active drilling campaign.

The prolific Henderson field, Winkler County, was credited with a group of tests on proved locations awaiting completion gauge late last week. Atlantic Refining Company's Fred Leck 4-A, NE SW SW Section 34, flowed an average of 68 barrels per hour for 18 hours through tubing from regular dolomite lime at 3085 feet. The company's Leck 2-B, NE NE NW Section 3, registered a lower structural position, and was preparing to test at 3120 feet, while Leck 3-B and 2-D, offsetting big production, were due for completion. Wahlenmaier Petroleum Corporation's Leck 2-D and Champlin & Bass, Inc.'s, Hess 1, both inside locations, were testing at 3071 feet and 3090 feet, respectively. Emperor Oil Company, Fort Worth, has obtained lease from Southland Royalty Company on 140 acres in two separate tracts, Section 4, and will drill two free wells in consideration for a half interest. R. H. Henderson et al's Daugherty 1, listed last week as a ½-mile northwest extension for the field, stepped up its flow to 170 barrels per hour through tubing choke after using 2000 gallons of acid in lime at 3098 feet.

Two northwest outpost tests for the Keystone field, Winkler County, will be drilled by Richardson Oils, Inc., Fort Worth, as part consideration for sublease made by Humble Oil & Refining Company on 3 tracts, aggregating 640 acres. The latter retains deep rights, and 1/16 overriding royalty. This deal involves lease on the south 320 acres of Section 3, Block B-3; NE Section 19 and NW Section 20, Block 77, PSL Survey.

Heavy oil flow from comparatively thin lime pay zone found in the Waddell field, Crane County, appeared when Gulf Oil Corporation's W. N. Waddell 15, located on north line of Section 10, registered a potential of 11,064 barrels of oil following 5000-gallon acid treatment at 3520 feet. The well averaged 151 barrels per hour natural from soft lime section at 3492-97 feet.

Production test for Honolulu Oil Corporation and Cascade Petroleum Company's Duggan Bros. 1, C Labor 13, League 55, Oldham County School Lands, southeastern Cochran County wildcat, has been deferred pending the landing of 7-inch pipe above the lime pay at 5025-5038 feet. Casing was cemented late last week. This isolated test filled 1000 feet with fluid in 16 hours, and the oil tests 27.1 gravity. Virtually all close-in acreage is held by active companies, and an attractive producer must be attained to stimulate drilling, as nearly all the leases have two years, or more, to run before expiration occurs. Other wildcat projects under way in the north portion of the Permian Basin did not yield important developments the past week. In Dawson County, Ray Albaugh et al's John Robinson 1 was idle with 3500 feet of fluid in the hole after deepening to 5019 feet. Amerada Petroleum Corporation et al's Averitt 1-A, Seminole area, Gaines County, was drilling below 3210 feet, with dry gas mudded off from above. Stanolind Oil & Gas Company's Davis 1, southwest Gaines County prospect, was logging lime and anhydrite at 4415 feet.

Favorable structural position indicated by lime marker logged by Sinclair Prairie Oil Company's J. L. Johnson 1-A, NEc NW Section 42, Block 42, T&P Ry. Survey, T-1-S, Ector County wildcat, failed as a good omen, as sulphur water was encountered between 4235-4270 feet, and only minor oil showings have been charted in drilling to 4520 feet. Top of lime revealed about 85 feet of structural relief when correlated with a small producer 3 miles to the southwest. Phillips Petroleum Company and Pure Oil Company are attempting a 1-mile east extension for the Goldsmith field, Ector County, in starting operations on Clyde Cowden 7, C SW Section 13, Block 44, T&P Ry. Survey, T-1-S. York & Harper, Inc.'s J. D. Slator 1, C NW NW Section 26, Block 45, T-1-S, seeking production about 5½ miles west by south of the same producing area, and last week was changing to cable tools after cementing 7-inch pipe at 3960 feet. Structural position of this wildcat induced the owners to run casing for a decisive test.

Pecos Ordovician Tests

Pecos County has been the largest contributor of any county in West Texas on new wildcat projects in recent weeks, and two of its active operations are contracted to drill to the Ordovician lime series. Claude B. Sewell, Wichita Falls, et al are reported to have contracted to drill a 3000-foot test in SWc NW Section 3, Block 114, GC&SF Ry. Survey, in return for donated acreage. Bahan & Rhodes, Midland, have completed sales of protection acreage to several large companies against two 2500-foot tests to be drilled in Sections 111 and 115, Block 8, H&GN Ry. Survey. First test will be on the H. E. Bonebrake 160-acre lease, SW NW NE Section 111. Albert P. and Ted O. Groebl and Harry Baldwin acquired ¾ interest in two sections of land, and have spudded a test on the Yates ranch on the south line of Section 55, Block 1, I&GN Ry. Survey, several miles southeast of the Yates field. Robertson et al previously were assigned lease on the acreage and two shallow wells completed in 1927 by Texon Oil & Land Company. The latter suspended developments after the first two wells in the 1200-foot sandy-lime horizon failed to yield sufficient production to attract a market outlet.

Application to drill twin locations in the dual pay zone section of the Grand Falls field, Ward County, have been filed with the railroad commission by the F.H.E. Oil Company, Fort Worth. This concern has completed wells in the 2500-foot sand zone, and recently Gulf Oil Corporation succeeded in developing more attractive production in a second sand below 2900 feet. Humble Oil & Refining Company's L. Richter 8 provided a short southwest extension for the lower pay zone in developing an initial flow of 1774 barrels after 180-quart nitro shot at 2850-2940 feet. Top of lower pay was logged at 2904 feet. No water is found in the shale and lime section separating the oil horizons.

HAMILTON COUNTY

Hamilton, Texas.—Seaboard Oil Corporation, Dallas, is moving in rotary to explore a 15,000-acre block in Hamilton County for production in the Marble Falls and Ellenberger lime zones, having made location for Fee 1, situated 660 feet from northeast and southeast lines of 112½-acre tract, A. C. Grimes Survey, 3 miles west by north of Fairy and 12 miles northeast of Hamilton. The company completed two prolific gas wells early this year from the Marble Falls lime near the 2400-foot level on its Pottsville structure, 10 miles northwest of Hamilton, thereby providing the first production for the county.

Wichita Falls, Texas.—First appearance of salt water with oil production in the Bruhlmeyer field, near Gainesville, Cooke County, was credited to 2 recent completions on the northeast edge of the area. J. C. Shaffer et al's L. M. Curry 4 showed 45 barrels of salt water along with 543 barrels of oil on initial flowing and pumping gauge from sands at 2094-99 feet and 2122-30 feet, with the hole bottomed in shale at 2140 feet. Leo Portman et al's T. C.

DeLisle 2, an east offset, gauged 500 barrels of oil and 30 barrels of water in 19 hours from sand at 2097-2103 feet, with a total depth of 2111 feet.

H. A. Melat and associates completed the largest Strawn pay producer in the old KMA field, Wichita County, early last week when S. I. Munger-Gulf 1-B gauged 190 barrels of high gravity oil in 9 hours after 250-quart nitro shot at 3777-3863 feet. The hole is bottomed at 3883 feet.

TAX UNDECIDED

Oil sure to get levy but how much question

Austin.—The Texas legislature got down to work last week and passed two bills of importance to the oil industry. In the House an omnibus tax bill was voted 131 to 7 and sent to the Senate for consideration. This bill carried an increase of three fourths of a cent per barrel on crude oil and three fourths of a cent of the value of natural gas produced in Texas.

Observers felt sure, however, that the bill would be radically amended in the Senate and that the final revision would come in free conference late in the session. For this reason it was still impossible to predict the probable bill that will be presented to the oil industry to pay for old-age pensions. Indicative of this situation was the fact that on the day after the omnibus bill was passed, the House proceeded with consideration of the Reader bill which would tax crude oil 10 cents per barrel. This bill will be before the House when it convenes Monday.

The Senate passed a bill creating an unemployment compensation commission of six members and authorized the establishment of the service in Texas to comply with the provisions of the federal statute. The Senate bill varies widely from that passed by the House, and it is unlikely that either body will offer enough concessions to allow the bill to reach its final form other than through a free-conference committee.

There was every reason to believe that the members will remain for the entire 30-day period, and might be called back for another session.

Still up for consideration was a bill to divert from the state highway department funds $3,000,000 to meet the immediate demands of old age pension payments.

Because this program met with radical opposition, Governor Allred worked out with Texas bankers a program to issue warrants bearing five percent interest which the bankers agreed to cash for the pensioners at face value. The Governor has insisted that no other subjects will be submitted until these matters are disposed of, and this may be the cause of the haste which members have displayed thus far.

WEST CENTRAL TEXAS

Completions

Company, Well and Location	Init. Pord. Bbls.	Depth
BROWN COUNTY—		
W. R. Cunningham et al, Armstrong 2	50	1431
Gunn Production Co., Dickens 7	10	1429
L. L. Shead et al, I. R. Hickman 1	*	1311
CALLAHAN COUNTY—		
I. G. Abney et al, School Fee 1	¶1	1257
R. C. Ames et al, Finley 1-A	10	600
Hal Hughes et al, Irwin 1	*	4502
McCrea & Flournoy, Seale 1	*	1148
Russell & Russell, Wiesen 1	¶1	1159
E. M. Schaffner et al, Vestel 1	*	1900
Ungren & Frazier, Jackson 4, sec 115	*	1560
R. H. Vise et al, Ross 1	*	1475
L. A. Warren et al, Jackson 1-B	¶4.6	1016
COLEMAN COUNTY—		
A. R. Eppenauer Drl. Co., Shields 5	50	1925
COMANCHE COUNTY—		
H. L. Baughman et al, Kotchman 1	*	1504
ERATH COUNTY—		
Seaboard Oil Corp., L. V. Garrett 1	*	4112
McCULLOCH COUNTY—		
M. Hill et al, McCall-Curtis 1	*	1526
SHACKELFORD COUNTY—		
Ambassador Oil Corp.-Ungren & Frazier, Dyer 7	*	1000
J. C. Asbury et al, Dyer 1	*	1004
Charter Oil Co., Mimms 9	233	1607
Crawford-Groover & Rhodes, Morris-Buie 2	200	1559
W. T. Daniels et al, Morris-Buie 1	*	1720
Grisham-Hunter Corp.-Brown Eagle Oil Co., Davis 3	12	1640
Groover-Rose-Jones & Stasney, Nail 1	25	1375
Sam Henderson et al, Hickman 1	*	700
Hoffman & Page Co., Morris-Buie 23	10	1597
Humble, Nail 3, sec 137	*	1854
Putman Supply Co., Morris-Buie 3-B	100	1602
Morris-Buie 5-B	200	1605
Reliance Oil & Roy. Co.-Jones-Stasney, Morris-Buie 3	237	1590
Morris-Buie 4	200	1597
Reliance Oil & Roy. Co., Nail 4-B	30	1538
Roberts-Hodges & Martin & Son, Davis 1	186	1725
Roeser-Pendleton, Inc., Dawson 13	75	1600
Roeser-Pendleton, Inc.-Humble, Morris-Buie 31, sec 201	*	1615
Root & Rhodes, Dawson 2	15	1324
H. Slicker et al, Matthews 7	10	905
Matthews 8	8	847
Ungren & Frazier, H. Y. Lieb 1	*	1632
Warren & Matthews, Matthews 1	7	941
White & Duncan, Morris-Buie 4	120	1588
STEPHENS COUNTY—		
Julian C. Hall Est. et al, Pratt 10	*	3860
Lone Star Gas Co., Cooke-Warren 22	2	1783
H. E. Talbott et al, Kennedy 1	¶21.7	3895

*Failures; †Junked; ¶Million cu. ft. gas.

TEXAS HEARING

Postponed until October 19

AUSTIN, TEXAS.

THE Texas Railroad Commission has postponed until October 19 the state-wide proration hearing which had been set for October 14.

The original notice issued by the commission provided for nominations to be filed by purchasers of Texas crude, indicating the demands for oil for November. With this notice, the commission sent to purchasers a form providing space for nominations during the next six months.

Because some operators hesitated to furnish all the information, the commission has issued a new notice asking that definite nominations for November be filed and that a forecast for the succeeding five months be included. These figures must be in Austin by October 15.

Last month the commission issued an order and declined to reduce allowables to figures recommended by the United States Bureau of Mines. It was explained that the commission felt that these figures did not reflect the true demand for Texas oil and that the commission would obtain figures indicating demand for six months in advance.

Through the new notice of hearing, this program is to be carried out.

TEXAS GAS RATES

State Supreme Court upholds Commission

AUSTIN, TEXAS.

THE Texas Railroad Commission has the power to fix the rates charged for natural gas in Texas from the well to the burner-tip. This was the effect of a decision handed down last week by the Supreme Court of Texas in refusing a writ of error in three important gas rate cases, the first to reach this court.

The most important decision was that upholding the commission's order fixing a 32-cent city gate rate for 271 towns served by Lone Star Gas System. The rate had been 40 cents and the 8-cent cut was ordered by the commission.

United Gas Public Service Corporation had applied for a similar writ in the Laredo gas case, where the commission had cut the domestic rate from 75 cents to 55 cents per thousand cubic feet. This order was retroactive to January 1, 1932.

NORTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
L. T. Burns et al, C. L. Abercrombie 2	*	1528
Burns & Long, Turbeville-Tidal 21, blk 152	*	1517
Consolidated Oil Co., Portwood 10-C-D, sec 2411	274	1434
Frank E. Haynes et al, Coleman 1, blk 46	*	2232
W. H. Junker et al, Junker-Kunkle 3, blk 12	*	1268
BAYLOR COUNTY—		
Consolidated Oil Co., Portwood 3-U, sec 3139	25	1436
COOKE COUNTY—		
Anderson-Kerr Pet. Co., Millie Hill 4	92	1982
Burk Roy. Co., Mrs. C. A. Brown 1	435	1991
Joe DeGrazier et al, E. P. Bell 4	122	1962
Homarado O&G Co., Ed. Wilson 4	750	1959
F. W. Merrick, Inc., J. W. Muerer 4	3	823
Mills & Carey, F. M. Bezner 1	*	180
Nair Oil Corp., W. G. England 1	*	2505
Leo Portman et al, T. C. DeLisle 2	700	2103
Rapp, Sledge & Gleason, C. A. Brown 2	473	2003
Seitz-Comegys & Seitz, Inc., R. W. Trew 5	5	710
J. C. Shaffer, Inc., L. M. Curry 4	573	2140
W. H. Jarrett 2	298	2121
Wertheimer, Devine & Roach, W. A. Erwin 1	*	1230
JACK COUNTY—		
Bennett Pet. Co., W. J. Chambers 1	351	2062
R. D. Compton Oil Co., O. Loving 4, blk 2	*	450
O. Loving 5, blk 2	*	427
MONTAGUE COUNTY—		
Bridwell Oil Co., J. S. Dennis 8	35	1662
Continental Oil Co., A. B. Hinton 4	25	775
Sinclair Prairie-Gibson-Jennings, Holt 2, blk 45	12	1705
WICHITA COUNTY—		
Continental Oil Co., J. H. Marriott 17	26	1776
Waggoner Bros. 13-C	60	1313
Sussex Oil Corp., Saunders 1, blk 7	199	1870
Wilson & Ligon, Foster-Allen 1, sec 1	35	1286
WILBARGER COUNTY—		
Phillips Pet. Co., Waggoner Est. 2-NNN, sec 42	343	2536
YOUNG COUNTY—		
G. E. Grininger et al, Prideaux 1	10	709
L. G. Hawkins et al, J. M. Kirkland 15, sec 2249	8	746
E. Lennington et al, Fee 1, sec 2	*	732
C. A. Montgomery et al, E. Remington-Russell 1	*	727
Panhandle Ref. Co., Prideaux 5	125	726
E. C. Reed et al, H. P. Cunningham 3, sec 3404	*	570
White & Duncan, Prideaux 1	*	726

*Failures; †Junked; ¶Million cu. ft. gas.

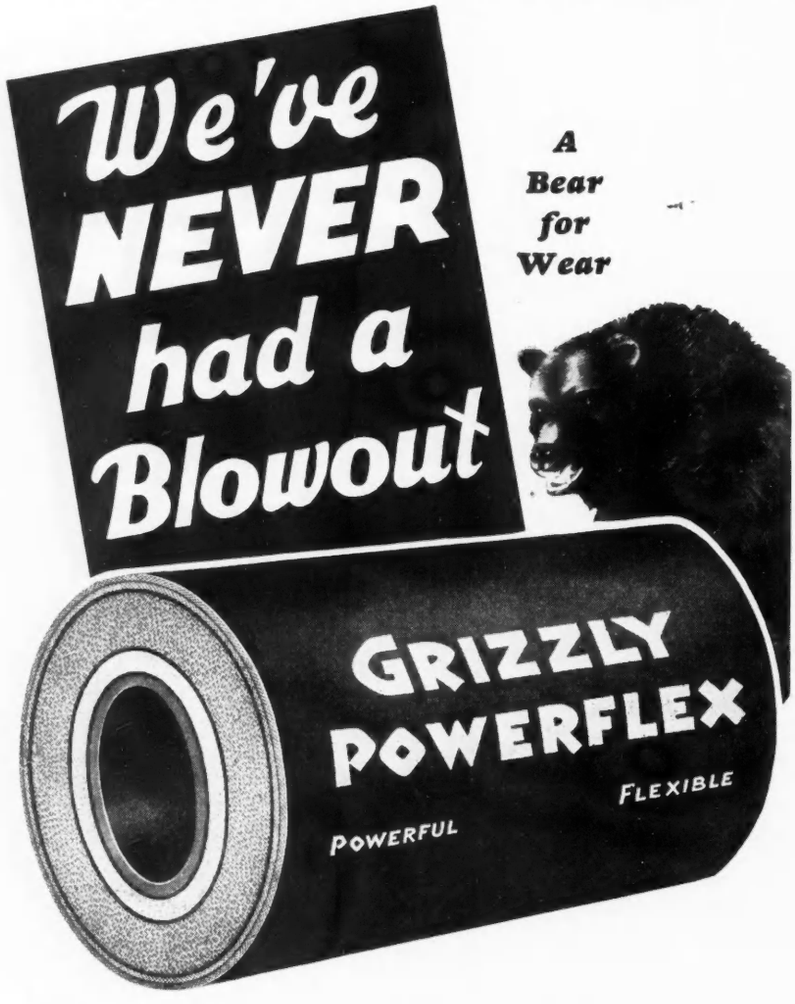
and would mean that customers in the city would be refunded approximately $20,000 a year from that date forward.

The third case was that of Public Service Corporation of Texas, which operates a small natural gas pipe line system from Wheeler County in the Panhandle to eight small towns in Texas. The company, selling both at wholesale and retail, had one set of books for both classes of sales and declared that it was impossible to determine proper rates. The railroad commission, however, ordered the company to keep separate sets of books. While the trial court dismissed the suit to enforce the commission order, the appellate court reversed and remanded the case for trial.

In each of the three cases decided last week, the Third Court of Civil Appeals at Austin had handed down decisions validating railroad commission orders, and by refusing the writs requested, the Supreme Court of the state adopted the decisions of the Appellate Court.

The only recourse now open is an appeal to the United States Supreme Court. Because of the importance of these cases, such an appeal will probably be taken.

Shreveport.—A. C. Glassell's Frost Lumber Company 1, Mary Potts Survey, Panola County, Texas, showed an estimated 10 million cubic feet of saturated gas daily Friday when tested after 7-inch casing was perforated with 9 shots at 5648 to 5653 feet. Test was made through ¼-inch tubing choke with casing and tubing pressure each 1100 pounds. Total depth is 6002 feet.



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TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Gulf Oil Corp., B. F. Block 9	516	3126
J. M. Hubet Pet. Co., Burnett 1-R.	¶67	2240
The Texas Co., H. Schafer 2	292	3135
United Crude Oil Co., E. Cooper-Shell 6	750	3140
GRAY COUNTY—		
Danciger Oil & Refineries, Inc., McLaughlin 3-A	628	3054
Empire O&R Co., L. H. Cunningham 9	530	3314
P. A. Worley 2	1030	3090
Skelly Oil Co., H. Schafer 78	806	3297
Tripplehorn Oil Co., J. S. Morse 2-A	334	2727
HUTCHINSON COUNTY—		
Drilling & Exploration Co., Inc., W. B. Haile 4	556	3086
McElroy Oil Co.-Herrmann Bros., Haile 1	643	3056
Pharris Oil Co., H. E. Smith 5	*	2735
Skelly Oil Co.-Cabot Carbon Co., Herring 3	¶16.8	3073
MOORE COUNTY—		
Anderson-Kerr Pet. Co., C. R. Jones-Gulf 1-A	¶29.7	3500
Skelly Oil Co., Armstrong-Byrd 11	¶36.5	2765
WHEELER COUNTY—		
Skelly Oil Co., D. E. Johnson 21	¶12	2962

*Failures; †Junked; ¶Million cu. ft. gas.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls	Depth
CRANE COUNTY (McCamey Field)—		
Dickson-Moore Corp., Hughes-Phillips 1	340	2343
CRANE COUNTY (Waddell Field)—		
Gulf Oil Corp., W. N. Waddell 15	11,064	3520
CRANE COUNTY (Wildcat)—		
Hollifield & McFarlane, J. Mosley 1	*	2574
ECTOR COUNTY (Foster Field)—		
York & Harper, Inc., J. E. Wicher 1	535	4406
ECTOR COUNTY (North Cowden Field)—		
Sinclair Prairie, T. A. Smith 1	320	4280
FISHER COUNTY—		
Gen'l Crude Oil Co., Wm. Flannigan 9	548	3116
HOWARD COUNTY—		
Conoco-Group 1 Oil Corp., B. Overton 13	1030	2449
JONES COUNTY—		
Thos. D. Humphrey W. F. Rushing 1	*	2732
H. T. Owens et al, H. Arnwine 1	*	634
PECOS COUNTY (Torborg Field)—		
Cardinal Oil Co., Tippett-Kirby 42-E	34	508
UPTON COUNTY (McCamey Field)—		
Conoco, A. A. Reese 2	446	2386
J. W. Ellis et al, J. W. Robbins 3-B	766	2177
Homestead O&G Co., M. C. Powell 1	35	2822
Humble, A. A. Reese 2	360	2650
WARD COUNTY—		
The California Co., A. B. Gordon 36	411	2519
Hardage-Wilson 2	357	2520
FHE Oil Co., (was C. Cothran et al) K. Green 2	23	2385
Humble, University 5-F	960	2755
Lynch Oil Co. (was Great States Oil Corp.), Himmell 1	300	2400
W. P. Luse & Ice, Gordon 3	437	3082
Fred G. Leidecker et al, Owen-Sloan-Shell 4	920	3045
Richardson Oils, Inc., J. H. Hathway 6	2197	2595
Skelly Oil Co., J. F. Hathaway 1	2363	2569
WINKLER COUNTY (Brown-Altman Field)—		
Illinois Oil Co., Abilene Central Bank-Conoco 1-B	705	3140
WINKLER COUNTY (Henderson Field)—		
Atlantic Ref. Co., Fred Leck 4-A	2000	3085
R. H. Henderson et al, Daugherty 1	5000	3098
WINKLER COUNTY (Sayre Field)—		
Eastland Oil Co., Roy Clapp 1, sec 26	1153	3107
Humble, N. R. Colby 6-A	1097	3105
N. R. Colby 1-C	809	2986
Magnolia, J. B. Walton 32	240	2930
J. B. Walton 33	615	2926
Monday Oil Co.-Bert Fields, Abilene Central Bank-Conoco 4	800	2980
Sayre Oil Co., J. F. Howe 4-C	984	3000

*Failures; †Junked; ¶Million cu. ft. gas.

Extend Two Fields

TALCO AND SULPHUR BLUFF BOTH STRETCHED EASTWARD

WEEKLY STAFF REPORT

Mount Pleasant, Texas.—Important east extensions for the Talco and Sulphur Bluff fields were awaiting completion late last week after registering favorable structural positions in the Paluxy sand zone. Production limits of the Talco area, Titus County, were advanced slightly more than one mile to the east when Humble Oil & Refining Company's I. N. Williams 1, NWc of 39.86-acre lease, G. Medlin Survey, cored saturated sand at 4231-4262 feet, with broken pay continuing to 4318 feet, of 3960 feet sub-sea. Top of Paluxy series was logged at 4205 feet, or 3847 feet below sea level, and seven-inch pipe was cemented at 4202 feet. The company holds lease on the three adjoining tracts, and is preparing drill on each

Third prospective producer and three-quarter-mile northeast extension for the Sulphur Bluff field, Hopkins County, was credited to Walter L. Goldston, Houston, et al's H. J. Smith 1, located on west line of 450-acre tract, Jas. A. Craft Survey, after logging saturated sand in coring to 4500 feet, with an elevation of 448 feet. Seven-inch pipe will be cemented above the Paluxy logged near the 4470-foot level, or about level structurally with the discovery producer completed last July by D. S. Hager, W. P. Luse and Russ Petroleum Company, Dallas. The latter made a 530-barrel pumper from their first deep test on the faulted structure, and in August completed a second well to the southwest flowing 550 barrels natural from Paluxy at 4487-4577 feet, with an elevation of 429 feet. The latter later increased its flow to 695 barrels daily, but developed bottom-hole water, which has since been eliminated by plugging back 14 feet.

Continuous drilling program for the Sulphur Bluff field is being projected by the discovery group as result of having made contract to sell their allowable production to Clint W. Murchison, Trustee, for two years. A company is to be formed by Murchison and associates to market the oil, and pending completion of their plans large steel tanks will be erected in the field.

Humble Oil & Refining Company and Magnolia Petroleum Company are carrying on the largest development program at Talco. The latter has been limiting its drilling to two company-owned rotary rigs, but added two contractor's rigs last week in order to keep abreast of offsets. Humble Oil & Refining Company has four active tests, and nine operations slated for immediate drilling.

In Navarro County, the proposed Trinity sand test of Phillip S. Groginski and others on the S. P. Love 130-acre tract, Richard Goad Survey, about 3½ miles southwest of Corsicana, logged Georgetown lime at 2150-2463 feet, with an elevation of 422 feet. Late reports credited the test with drilling near the 3200-foot level. In the Bazette fault area, Calto Oil Company's Etta Black 1, NEc 160-acre lease, B. G. Balthrope Survey, has spudded to comply with contract, and will be carried to a contract depth of 6000 feet.

The Trinity sand test of E. G. Colton, R. P. Lester et al on the J. C. Barrow 40-acre tract, J. D. Taylor Survey, failed to sidetrack section of drill pipe and bit lost near the 3600-foot level, and has been ordered abandoned with the hole bottomed at 5968 feet, or 32 feet short of its contract depth. Owners are giving consideration towards the drilling of another test on the block, which centers upon the northeast corner of the county and on the Mexia-Talco fault plane, although the junked hole proved dry in the Paluxy and upper Glen Rose zones of the Trinity series.

J. S. Abercrombie Company and Harrison Oil Company's Southern Pine Lumber Company 2, D. D. Bruton Survey, Red River County, was drilling below 2100 feet late last week, and will attempt to drill through the Trinity section to try for production in the Paleozoic, which has been penetrated by comparatively few tests in northeast Texas. The above partnership's previous test on the Bruton Survey located about 2500 feet southwest of the new project cored oil saturated sand in lower Trinity at 2103-2111 feet, but showed salt water when formation tester was used at the latter depth. The hole was junked at 2294 feet.

Tyler, Texas.—Volume of completions in the East Texas field is beginning to reflect the partial recovery of drilling operations, and during the past week there were 43 completions, including one failure, as compared to a total of 32 the previous week. The current completion list shows 18 producers established initial gauges by pumping, or flowing with the aid of gas lift equipment.

Independent operators are carrying on the largest drilling program, having contributed 30 of the completions reported last week. Majority of the non-flowing wells were drilled by independents.

New Outlets

TALCO AND SULPHUR BLUFF TO GET MARKET FACILITIES

Mount Pleasant, Texas.—Competition for the heavy grade sulphur-contaminated crude produced from the Paluxy sand series in the Talco field, situated in Titus and Franklin counties, and the nearby Sulphur Bluff field, Hopkins County, is beginning to make its appearance. Storage, pipe line connections and possibly a crude skimming plant is in store for the latter area as result of Clint W. Murchison, Dallas, acting as trustee, having made a two-year contract to purchase all oil produced by D. S. Hager, W. P. Luse and Russ Petroleum Company from their discovery leasehold in the Sulphur Bluff field, aggregating about 400 acres. The crude contract is reported to involve a price of 57½ cents per barrel at the well.

Murchison is head of American-Liberty Pipe Line Company, which has an 8-inch trunk line linking the East Texas field with tanker terminal near Houston, and will erect a 55,000-barrel steel tank in the Sulphur Bluff field to accept crude deliveries pending the establishment of a permanent transportation outlet. Murchison, in association with Dudley S. Golding and Toddie L. Wynne, also officials of American-Liberty Pipe Line Company, have acquired substantial interests in the Talco field, and are drilling four tests on proved locations in the Talco townsite. This development is carried on as G. M. W. Oil Company, Dallas, and a private gathering system will be installed shortly.

Construction of a refinery is contemplated by Murchison and associates to operate on the Paluxy sand production, and a pipe line to the East Texas field to tie into a system that would transport the light fractions to the Gulf Coast. Actual construction of the plant and connecting line to East Texas will be deferred until an ample supply of crude is assured.

Talco Pipe Line Company, headed by Capt. J. F. Lucey, Dallas, has placed orders for about 15 miles of 5½-inch O. D. pipe and booster station equipment to be used in building a line from the Talco field to the Cotton Belt Railroad. The company plans to terminate this line either at Mount Pleasant or Mount Vernon, both on the above main line railroad and about equal distance from the Talco field. Talco Pipe Line Company was the first purchaser to enter the field, hav-

ing installed a rack at Talco on the Paris & Mount Pleasant Railroad, with the bulk of its oil purchases going to East Texas cracking plants. The company is also contemplating the erection of a crude skimming and cracking plant on the Cotton Belt Railroad, having been assured of a long term fuel oil contract from the above carrier. Construction of a 55,000-barrel steel tank at Talco for the storage of crude, and one or more large tanks at the terminus of the new line, has been authorized by Talco Pipe Line Company.

Humble Pipe Line Company began moving Talco crude through its 8-inch trunk line system on October 1, and first deliveries into Longview junction, where connection is made with a 10-inch line to Baton Rouge, La., occurred on October 3. The company is soliciting outside pipe line connections in the Talco field at a posted price of 60 cents per barrel.

MAKING TEST

Shreveport.—A. C. Glassell's Frost Lumber Company 1, Mary Potts Survey, Panola County, Texas, was ready to drill plug in 7-inch casing which was cemented after total depth of 6002 feet was reached, and perforate the casing at different levels where this hole had shows of oil and gas, below the base of the massive anhydrite at 4840 feet; elevation is 216 feet. Gas shows were reported at 4890, 5663-75 feet, and at 5897-5901 feet. Salt water was tested at 4994 to 5004 feet.

The shows in this test coming on the heels of the gas-distillate well of H. A. Stebbinger in Pickering Lumber Company 1, C. E. Henry Survey, Shelby County, near Joaquin, which showed for 5 million feet of gas and 48 barrels of distillate daily at 5029 feet in oolitic lime below the anhydrite, has caused a great deal of leasing and geophysical activity in these two counties.

Another spur to this activity was the behavior of E. L. Chapman's Pickering Lumber Company 1, C. E. Henry Survey, 700 feet from Stebbinger's well. The Chapman well completed several years ago at 3840 feet as a gasser and later bridging after supplying gas to Joaquin and Logansport for several months, was treated with acid and came in making gas and oil. It later was reported to be making 1,500,000 cubic feet of gas daily through ½-inch tubing choke and was connected to the Joaquin-Logansport 2-inch gas line. Casing pressure was 900 pounds.

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STAR DRILLING MACHINES

EAST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
D. K. Caldwell Oil Corp., B. Fox-State 6 (8.2-ac)	4000	3707
E. T. DeArman et al, Crook 2 (8.29-ac)	80	3652
J. E. Farrell & Co., W. W. Hammitt 8 (100-ac)	40	3690
Harry Hanbury et al, J. H. Sharp-Ohio 8 (112.32-ac)	800	3688
J. H. Sharp-Ohio 9 (112.32-ac)	750	3717
Haynes Oil Corp., C. Lee 16 (73.6-ac)	8800	3616
Humble, Kangerga Bros. 57-A (333¼-ac)	4000	3673
Mrs. M. Wooster 10 (74.23-ac)	7000	3801
Jackson-Wise-Snedden, J. B. Wilson 11 (41-ac)	9600	3640
W. T. Mack et al, W. W. Wilson 1 (100-ac)	50	3677
W. W. Wilson 2 (100-ac)	50	3634
Alex McCutchin et al, T. Stone 4 (5.99-ac)	700	3754
Attaway B. Stone 5	4000	3814
Merry Bros. & Perini, Inc., A. Kelly 8 (90-ac)	100	3677
Ohio Oil Co., C. L. Graham 9, Acct. 1 (341-ac)	20	3689
Stanolind, W. Wooley 6 (58.44-ac)	120	3561
Texas Canadian Oil Corp., A. Kersh 8 (101.76-ac)	250	3648
Texas Gulf Pet. Co., Hodnett-Melton 14 (134.84-ac)	3600	3689
Wheelis Oil Corp., G. Patterson 10 (172-64-ac)	240	3725
KILGORE AREA—		
Arcadia Ref. Co., E. Samples 11 (101.66-ac)	700	3734
Humble, S. S. Laird 40-A (230-ac)	6600	3696
J. I. Jenkins-Carter-Baggett, G. W. Culver 1 (30-ac)	240	3757
L. O. McMillan et al, W. Roberson-Shell 16 (100¾-ac)	140	3595
Magnolia, W. P. Moore 17 (152-ac)	10,500	3680
Max Rubin et al, K. M. Pitner 1 (40-ac)	20	3443
Sun Oil Co.-Seaboard Oil Corp., Cole 36 (266.17-ac)	5500	3539
The Texas Co., H. T. Elder 31 (92.34-ac)	7000	3654
Texas Canadian Oil Corp., H. J. Thomas 2 (24.94-ac)	150	3689
H. J. Thomas 3 (24.94-ac)	125	3684
H. J. Thomas 4 (24.94-ac)	150	3676
LONGVIEW AREA—		
Arkansas F.O. Co., Lathrop 16-A (83.2-ac)	8700	3626
Atlantic Ref. Co., Satterwhite 11-A (69-ac)	10,000	3790
Atlantic-Sun, M. Hays 75 (448-ac)	10,500	3520
E. B. Cox & Jake Hamon, Ed. Lacy 9 (80-ac)	8000	3575
J. W. Croley & G. M. Crosby, A. Christian 1-A	7500	3603
Gregg Oil Co., TP Ry. Co. 3-A	5500	3534
Gulf Oil Corp., A. N. Neeley 10 (49.44-ac)	5000	3512
Humble, J. F. Boles 18 (100½-ac)	8300	3637
Thos. D. Humphrey, Mrs. L. M. Baker 4 (23-ac)	*	3679
G. W. Dunbar 4 (104-ac)	132	3605
T. W. Lee et al, Fee 1 (52/100-ac)	35	3653
L. G. & S. Oil Corp., McQueen 12 (94.54-ac)	1000	3574
United E&W Oil Co., E. L. Walker 11 (62-ac)	4500	3604
ANDERSON COUNTY (Cayuga Field)—		
Roeser-Pendleton, Inc., Ware-Wilson 7 (460-ac)	750	4037
ANDERSON COUNTY— (Long Lake Field)—		
Tide Water-Seaboard Oil Corp., Monnig Bros. 6 (3806-ac)	1500	5265
FRANKLIN COUNTY (Talco Field)—		
R.B.&H. Oil Co., E. L. Phillips 1-B (30-ac)	528	4330
NAVARRO COUNTY— (Corsicana-Powell Field)—		
Henry Pryor et al, Allen Edens 1	*	708
TITUS COUNTY (Talco Field)—		
Gray & Wolfe (J. M. Singleton), A. V. McElroy 2, lot 4, blk 27	144	4361
Humble, A. P. King-Hughes 15 (1053-ac)	221	4316
W. T. Sullivan-Porter Bros. 1 (4-ac)	80	4352
KAUFMAN COUNTY—		
E. G. Colton, R. P. Lester et al, Barrow Bros. 1 (40-ac)	†	5968

*Failures; †Junked; ¶Million cu. ft. gas.

Corpus Interesting

MANY DISCOVERIES AND SHOWS IN AREA

WEEKLY STAFF REPORT

Corpus Christi. — Practically every county in the Trans-Salt Dome Region of South Texas was in the wildcat spotlight late this week as the result of new discoveries or showings being tested.

Nueces County led the parade with 2 important wildcat completions. Texon Drilling Company's Helen Philibert Austin 1, western Nueces County, has been completed for an estimated 100 barrels of 43 gravity oil per day through ⅛inch choke under pressures of 1600 pounds on tubing and 2000 pounds on casing. The well is bottomed at 5836 feet in the Frio, the sand being encountered at 5756-79 feet and casing set at 5756 feet.

The well is in the northwest corner of Share 2, W. W. Chapman subdivision, in a 526-acre tract, 1½ miles southwest of the Agua Dulce field. Except for several pieces to the south, the block is completely controlled by Texon Drilling Company. It consists of 8000 acres.

About 8000 feet northeast of the above well, this company is drilling below 5800 feet in McCoy 1, northwest corner of 160-acre tract, Share 6. The well apparently has passed the above sand without obtaining showings, although no detail information is available.

W. A. R. Oil Company's Bertha Buckholt 1, 3000 feet south of the Clarkwood production in the Saxet field, Nueces County, has been completed through perforations at 4448-51 feet, where it flowed 148 barrels per day through 5/32-inch choke. On a short gauge through two 1-inch chokes, the well is reported to have flowed in excess of 100 barrels per hour. It is 1600 feet north of Sherman Nelson et al's Buckholt 1, which opened a producing area several months ago. With the completion of the new producer, it now appears likely that these pools will be connected.

Between the Saxet and Saxet Heights fields, Barnsdall Oil Company is below 5365 feet in Weil 1, deep test being drilled in an effort to connect these areas.

Eleanor Oil Company's William Kline 1, 2½ miles southeast of Gregory, San Patricio County, was attempting completion late in the week after pulling liner and screen, which apparently had sanded up. The well, located in Lot 5, Block C, Coleman Fulton Pasture Subdivision, gives promise of opening a new producing area in this county on strike with the recently discovered McCampbell area several miles to the northeast.

This well has been closed on information, but the following seems to be the accepted correct data: It is supposed to have drilled to 6681 feet after finding sand at 6270-6436 feet (166 feet in all); set 7-inch casing at 6478 feet and perforated at 6418-28 feet with 23 shots. An electric formation tester was run which indicated resistances as follows: 6270-75, 4½ ohms; 6296-6320, 15 ohms; 6320-6405, 25 ohms; 6405-6436, 13 ohms. The Discorbis was encountered at 5500 feet, Marginulina at 6050 feet and Frio at 6430 feet.

In the White Point field, same county, Callaway et al's White Point Development Company 1, plugged back to test the 4900-foot sand, but was delayed in completing. It previously showed for an oil producer at 4900-17 feet, but made considerable salt water, likely due to mechanical troubles.

Jim Wells Extension

Tom Graham's F. Bennett 1, Lot 87, Section 76, two miles west of Premont field, Jim Wells County, has been completed to either open a new field or materially extend the present proven area. The well is flowing 125 barrels of 22.6 gravity oil per day through 3/16-inch choke under pressures of 440 pounds on tubing and 860 pounds on casing, the sand being at 2340-50 feet. Reports vary as to whether or not the well is making water with the oil. This well was commenced by Gist & Graddy, but taken over by Tom Graham for completion after the sand had been cored. The production likely is in the Catahoula and is about the same level as several gassers in the area.

Two miles west of the Bentonville-King District, same county, Camp Drilling Company is drilling below 5483 feet without picking up the sand of the producing area to the east. It has several gas shows, but is to be carried as a deep test. Slightly more than 1½ miles southwest of the field, Tom Graham is drilling below 4814 feet in Luby Estate 1.

Perforating Heaving Shale Test

Continental Oil Company is preparing to drill plugs in Austin 1, P. Garcia Survey, near Seadrift in Calhoun County. The well drilled to 8750 feet in sidetracked hole, set 6⅛-inch casing on bottom and will gun perforate between 8700-10 feet for a production test. Three miles northwest of this well, Hiawatha Oil Company's John Romer Estate 1 is drilling below 8000 feet, its contract depth. Both are heaving shale prospects.

Humble Oil & Refining Company and Plymouth Oil Company encountered sand at 5595-5620 feet in Welder 3-B and a drill-stem test is being run. The well is about 100 feet deeper than present production in the Heyser field, Calhoun county.

Steinberger Petroleum Corporation is still tied up with a fishing job at 7180 feet in Drushell 1 in the Edna District of Jackson County. It was attempting to make a production test at this level when bit and reamer were lost in the hole.

Plymouth Oil Company's J. J. Welder 1, S. Belding Survey, in northern Victoria County, is drilling below 6126 feet in shale, while R. H. Welder 1 is drilling at a shallow depth. Both wells are on highly interesting geophysical structures in this county. Portilla Oil Company's Welder 2, in the Hughes field, Victoria County, is below 5000, feet testing an oil sand. Reports on this well are inconsistent, some carrying it as drilling below 5500 feet.

Austin, Texas.—A hearing on the Greta field, Refugio County, has been scheduled for October 20 at Austin by the Texas Railroad Commission.

The hearing has been called at the request of Greta producers, who seek a revision of the spacing rule for wells drilled to the Greta deep sand.

The deep wells at Greta are now drilled in the center of 50-acre units, while in the adjacent Quintana field there is 20-acre spacing. Greta operators seek uniform rules for the two fields.

REFUGIO HEARING

Austin, Texas.—At a hearing before the Texas Railroad Commission last week operators from the five fields in the Refugio area presented evidence to show that each field was separated from the others. Commission officials were of the opinion that the fields might be joined, and if this were the case, they favored prorating all of them as one unit and providing uniform operating regulations for all five fields.

James Hancock, geologist for United Production Corporation, presented a series of charts showing cross-sections of the fields, to prove that they were different, geologically. Hancock explained that there was a fault between the Greta and O'Connor areas which separated these fields from the base of the Greta field downward. He stated that the throw of this fault varied from 125 to 230 feet. He furnished further charts to show that the Refugio, the Refugio-Fox and the Greta fields were likewise separated because each constituted a separate structure.

The charts indicated that the sands which produce in each field dipped between fields and that in these areas where the sand was low, it carried nothing but water. Each field he pointed out was located on a separate structure and for this reason he contended that they should be treated as separate units.

E. C. Rach, petroleum engineer for E. M. Jones, who operates leases in the Greta field, presented evidence to show that waste is taking place in production from the shallow sand because of the low allowables provided in railroad commission proration orders.

The wells are now allowed to produce 64 barrels per day, and Rach said that this would soon result in the necessity for jetting the wells, which in turn would cause further waste.

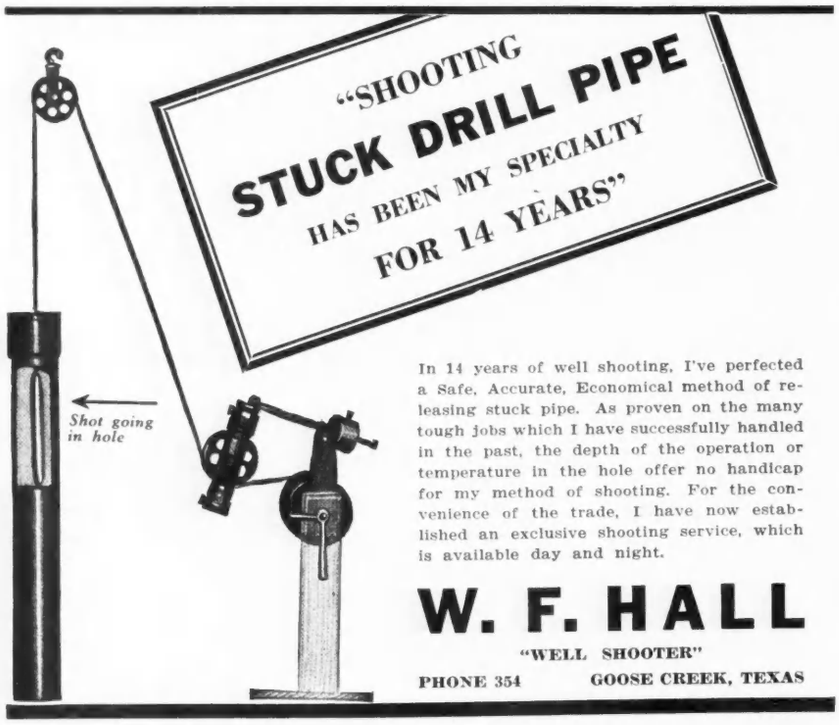
He urged the commission to increase the allowables to 75 or 100 barrels daily, at which rate more efficient gas-oil ratios would result. This also, he said, would eliminate the necessity for jetting and the wells would flow for some two years more.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BEE COUNTY—		
W. V. Bowles, C. Mengers Sr 1, 1636 ft swl, 715 ft sel of W. Allen sur, 100-ac tr, 4½ mi w of Skidmore, 2 mi w Tynan	*	6010
Devonian Oil Co., C. A. Voss 2, S. May sur (Voss)	200	4026
Lonnie Glasscock, J. B. Ablinger 1, 466 ft nwl, 300 ft nel 109.65-ac tr, John Ryan sur (Beeville)	*	800
Humble, Will Voss 1, Samuel May sur,(Voss)	250	2989
D. R. Semmes, T. M. Plummer 1, F. J. Chessman sur (Plummer)	*	3309
Siznod Oil Corp, A. M. Holzmark 1, 330 ft wl, 990 ft sl of 20-ac lse, S. May sur, 1320 ft n disc (Foley)	100	4101
CALDWELL COUNTY—		
Taylor Ref. Co., Denie Miears 2, 1142 ft se No. 1 Miears, 250 vrs sel, 54 vrs nel, 134-ac tr, Nicholas Kelly sur (Dale)	*	860
Whisenant & Trenchard, Hal Browne 1, J. R. Miller sur (Branyon)	25	2197
CALHOUN COUNTY—		
Humble & Plymouth, P. H. Welder 4-A, J. M. Rios sur (Heyser)	620	5470
DUVAL COUNTY—		
Mills Bennett Prod. Co., Ira Yates 1, sur 560 (Labbe)	*	3503
Bridwell Oil Co., M. C. Hubberd 14-A, BS&F sur 71 (Loma Novia)	240	2752
Conservative Oil Co., DCRC-Sun 3, sur 51 (Colmena)	40	1546
DCRC-Sentz 1, sur 51 (Colmena)	175	1500
Cox & Hamon, J. B. Peal 6, sur 796 (Lopez)	1440	2189
Gov't Wells Oil Co., E. C. Lundell 20, sur 60 (Gov't Wells)	70	2289
Humble, M. C. Hubberd 55-B, sur 72 (Loma Novia)	320	2770
G. Ruiz Est 17, sur 553 (Loma Novia)	355	2769
T. D. Smith 27, sur 382 (Seven Sisters)	690	2457
Illinois Pet. Corp, A. Hazelwood 9, sur 110 (Seven Sisters)	120	3220
Magnolia Pet. Co., C. W. Hahl 45, sur 67 (Loma Novia)	¶10	2716
J. T. Johnson 11, sur 44 (Gov't Wells)	40	2330
Nealy Estate 3, sur 220 (Seven Sisters)	*	2519
J. B. Peal (M.G.) 14, sur 383 (Lopez)	480	2125
(M.G.) 16, sur 383 (Lopez)	50	2166
Pitkin & Gholston, Bishop Cattle Co. 6, sur 57 (Loma Novia)	540	2630
Rosan Oil Co., M. C. Hubberd 1-B, BS&F sur 71, (Loma Novia)	575	2793
Shell Pet. Corp, V. Mendoza 16, sur 68 (Loma Novia)	485	2738
V. Mendoza 17, sur 68 (Loma Novia)	900	2756
Southwest Prod. Corp., J & M Luptack 3, sur 41 (Gov't Wells)	*	lcn.
The Texas Co., Bishop Cattle Co. 17, sur 57 (Loma Novia)	60	2574
E. R. Thomas et al, Atlee Parr 1, 420 ft sl, 330 ft el 12.59-ac tr sur 26, 6 mi nw San Diego	*	4724
Wellington Oil Co., J. F. Welder hrs 10-B, sur 383 (Seven Sisters)	310	2447
Westheimer & Daube, Z. Campos 19, sur 224 (Seven Sisters)	300	2710
Z. Campos 20, sur 224 (Seven Sisters)	350	2729
GOLIAD COUNTY—		
The California Co., Landgrebe 1, 466 ft nl & el 100-ac tr, John Hancock sur, 8 mi n Goliad	350	5022
Felmont Corp, Mrs. W. O. Maetze 1, 4290 ft wl, 330 ft el 1866-ac tr, Gertrude Baerrara sur, 6 mi ne Goliad	¶15	5660
GONZALES COUNTY—		
Tull et al, J. F. Bozke 1, 800 ft sl & el 61.2-ac tr, B. McClure sur, s of Dilworth	*	2200
HIDALGO COUNTY—		
G. W. Heeler, Felipe Farias 1, tr 255, porc 39, Reynosa Juris (Samfordyce)	*	lcn.
JIM WELLS—		
Tom Graham, F. Bennett 1, 330 ft sl & el, lot 87, sec 76, Holdeman subd (Premont)	375	2350
La Jita Oil Corp, Frame & Bowers 1, sec 14, King Ranch subd (Bentonville)	650	5384
Putnam et al, Canales Est 1, center blk 32, Mosser subd, Canales Est, 400 ft nl, 425 ft wl of J. Rugley sur 36, near county line due w of Ella	*	3454
LIVE OAK COUNTY—		
Barber & Miller, W. M. Blanks 1, 150 ft s Whitsett Rd, 1500 ft el of 850-ac tr, A.B.&M. sur 103, 4½ mi ne Whitsett	*	760
Loma Oil Co., H. E. Palmer 2, 1800 ft nel, 150 ft nwl of tr in T.B. Sparks sur, 4 mi sw Whitsett	*	1097
McMULLEN COUNTY—		
Agarita Oil Co., H. L. Lark 4, E.W.B. Scrugham sur (Jacob)	35	985
R. J. Hill et al, Richardson 1-A, 1650 ft nl, 1040 ft el sur 158	*	2775
Loma Oil Co., L. Jacob Corp 8-F, John Faddin sur 8 (Jacob)	20	930
Ike W. Taylor, H. L. Lark 1, 150 ft out of sw/cor lot 72, Lark subd, E.W.B. Scrugham sur, between Calliham & Jacob fields	*	600
NUECES COUNTY—		
Barnsdall Oil Co. & Flour Bluff, J. O. Phillips 2-A, Flour Bluff, lot 12, sec 55, Flour Bluff & Encinal Gardens (Flour Bluff)	792	6645
R. B. Bryant, Martha Scoggins 2, GC&SF sur (Saxet)	265	4572
Costa Oil Co., N. V. Henderson 1, blk 10, sec 48 (Flour Bluff)	20	6642
Lonnie Glasscock, Glover Johns 2, sur 582 (Saxet)	545	5819
Hiawatha Oil Co., J. Griffith 5, Frank sur 416 (Saxet)	520	5840
Smith 1-B, blk 25, Sheppard Farm lots (Saxet) perf 5874-78	960	5896
Houston Oil Co., T. M. Harrell 5, lot 19, Sheppard Farm lots (Saxet)	390	4540
Howell & Hawkins, Page Bros. 1, sur 416 (Saxet)	*	6800
J. A. Lavender Jr., H. E. Long et ux 1, lots 1 & 2, blk 3, Ellendale Gardens (Saxet Heights)	305	4086
Pan American, Rand Morgan 3-C, sur 405 (Saxet)	510	5820
H. M. Reed, R. M. Roper 2, lot 11, blk "E", sec 108, Paul subd (C. Driscoll) perf 3977-83	80	3999
Southern Minerals Co., F. E. Bliss 16, J. W. Stevens sur (Saxet)	520	5830
Texon Drlg Co., Antone Ocker 5, sur 404 and 316 (Saxet)	350	4557
W. A. R. Oil Co., Mrs. Bertha Buckholt 1, 330 ft easterly wl & northerly nl of 258.9-ac tr, sh 4, Buckholt partition, Ward sur 316, 1 mi se Clarkwood (Saxet)	2500	4485
REFUGIO COUNTY—		
HeWitt & Dougherty, M. F. Lambert 31, Hews sur (Tomoconnor)	350	5883
Quintana Pet. Co., Tom O'Connor 5-A, G. W. Main sur (Tomoconnor)	2750	5926
United Prod. Co., Fannie Heard 16, lot 13, Refugio Town tr, (Refugio)	420	4925
SAN PATRICIO COUNTY—		
Cage Prod. Co., J. W. Mayo 4, J. N. W. Ottman sur (Taft)	220	4949
Centennial Oil Co., Chilipitin Creek 3, sec 71 Welder Ranch subd, Creek Bed tr 3 (Plymouth)	350	5613
Humble, J. W. Mayo 8, J. H. Ottman sur, (Taft)	1100	3980
Plymouth, E. H. Welder 64-C, sur 71, (Plymouth)	*	385
Sun Oil Co., Rosson 3, lot 2, sec 35, (Plymouth)	410	5643
VICTORIA COUNTY—		
Crown Central Oil Co., Frank Gebauer 6, SA&MG sur a-304, (Placedo)	460	4773
Portilla Drlg. Co., P. H. Welder 3, Felipe Dimmitt sur (Hughes)	*	lcn.
P. H. Welder 4, Felipe Dimmitt sur (Hughes)	*	lcn.
P. H. Welder 5, Felipe Dimmitt sur (Hughes)	*	lcn.
WEBB COUNTY—		
Mills Bennett Prod. Co., M. Lopez 5, CCSD&RGNG sur (Lopez)	575	2221
M. Lopez 6, sur 114 (Lopez)	*	2264
C. H. Lewis, Alonzo Lopez 8, sur 110, (Lopez)	430	2264
G. G. Mortimer, J. Lopez 4, sur 73 (Lopez)	575	2193
Paula Vela 5, sur 114 (Lopez)	430	2208
Smith & Hamill, S. Benavides 9, blk 435, Hale subd, Arispe gr, (Cole)	780	2943
S. Benavides 31, blk 453, Hale subd, Arispe gr (Cole)	500	2941
Superior Oil Co., J. H. Kirkpatrick 1, sur 18, 1980 ft nl, 800 ft el sur, 1 mi s Leaseholders, 3 mi nw Lopez	*	2852
WILLIAMSON COUNTY—		
H. H. Coffield et al, Paul Horn 1, 600 ft nwl, 330 ft swl of 76-ac tr, J. Bevil sur, 1¾ mi sw Thrall	*	960
ZAPATA COUNTY—		
Gilcrease Oil Co., A. P. Haynes 8-B, sec 4, Haynes subd, Comitas & Villa gr (Comitas)	18	991
A. P. Haynes 4-C, blk 8, Comitas & Villa gr (Comitas)	27	998
A. P. Haynes 5-C, sec 8, Haynes subd, Comitas & Villa gr (Comitas)	61	872
Mid-Continent Pet. Corp, A. P. Haynes, blk 8, Haynes subd, Comitas gr (Comitas)	60	870
J. P. Nash Trustee, A. P. Haynes 23, Comitas gr (Comitas)	50	978
Nordan & Morris, A. P. Haynes 12-A, blk 7, Haynes subd, Comitas gr (Comitas)	62	1071
A. P. Haynes 13-A, blk 7, Haynes subd, Comitas & Villa gr (Comitas)	50	1064
Upchurch & McKay, A. P. Haynes 11, Comitas & Villa gr (Comitas)	30	1003

*Failures; †Junked; ¶Million cu. ft. gas.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GOOSE CREEK, TEXAS

Three Pettus Strikes

TWO IN GOLIAD AND ONE IN BEE COUNTY

Beeville.—Three wildcat strikes in Pettus district during the past week again places this sector of South Texas in the spotlight as a probable hot spot for both wildcatting and field work. The discovery of two new areas in Goliad County widened the general zone materially to the east.

The California Company's Langreve 1, in the extreme northern portion of Goliad County, is flowing at the rate of 75 barrels of 46 gravity oil per day through ¼-inch choke, showing pressures of 320 pounds on tubing and 730 pounds on casing. It drilled to 5022 feet, plugged back to 4912 feet and is in sand at 4900-7 feet. Seven-inch casing is set at 4795 feet. Production is from the Yegua.

The well is located 466 feet from the north and east lines of a 100-acre tract in the John Hancock Survey. Its nearest production is the Slick field, 4 miles to the west.

Ten miles south of this well, Felmont Corporation's Mrs. W. O. Maetze 1 has been completed as a gasser from perforations at 3463-65 feet. It originally was drilled by Claude Morgan et al to 5660 feet and abandoned. An electric formation tester indicated several possible sand sections and casing was set at 4875 feet. The well was plugged back to 3498 feet and perforations made at 3463-65 feet, where it was completed as a dry gasser showing 1500 pounds pressure. The sand likely is in the lower portion of the Frio.

This well is on a highly interesting geological and geophysical picture. It is in the east central portion of an 1866-acre tract in the Gertrude Baerrera Survey.

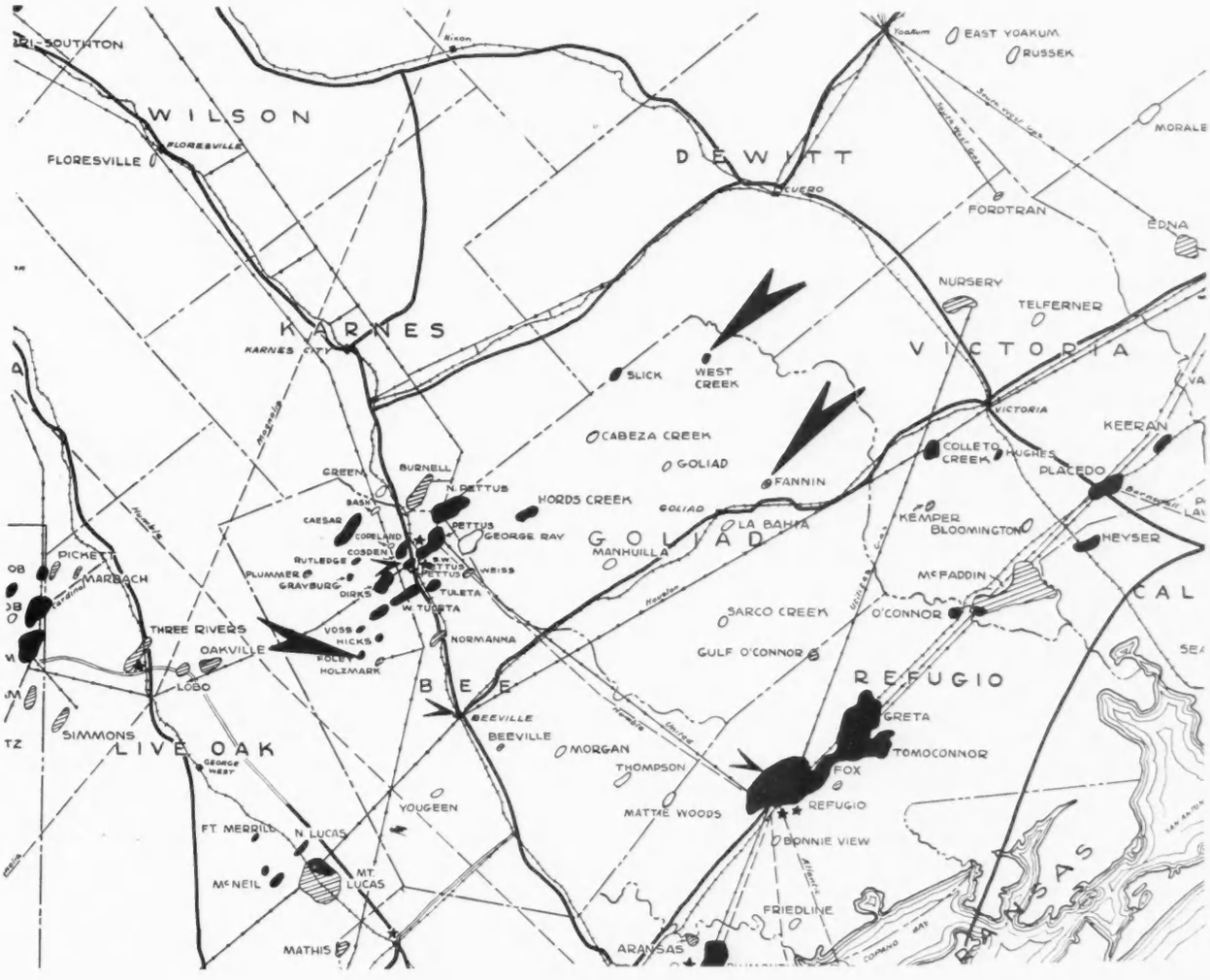
Miller-Donzis Oil Company definitely established Pettus sand production in the Foley field, Bee County, through completion of A. M. Holzmark 1, 1320 feet north of the discovery well and in the S. May Survey. The well is in sand at 4081-4101 feet and is producing between 60 and 65 barrels per day through ⅛-inch choke under pressures of 1150 pounds on tubing and 1200 pounds on casing. It has not fully cleaned itself. Production heretofore had been only from Hockleyensis about 3450 feet.

The Foley and Voss districts, located within 2 miles of each other in Bee County, are receiving a rather rapid development campaign.

TEXAS PERMITS UP

Austin, Texas.—The railroad commission last week approved permits for the drilling of 417 new wells in Texas, 246 more than were allowed the week before. The increase was caused by the issuance of a large number of permits as exceptions to the regular spacing rule. The commission had taken no action on these permits since September 11, and a large number had accumulated.

There were 106 permits approved for



West Creek field in Goliad County, while Felmont Oil Corporanew wildcat strikes during the week. Miller-Donzis Oil Company's Holzmark 1, established Pettus sand production in the Foley field, Bee County. California Company opened the new West Creek field in Goliad County, while Felmont Oil Corporation established a new gas area near Fannin in Goliad County.

East Texas: 60 in Gregg County, 26 in Rusk County, 11 in Smith County and 9 in Upshur County. In the remainder of the East Central Texas district, 58 locations were allowed with 23 in Cass County, 20 in Cooke County and 10 in Titus County.

Southwest Texas reported 75 locations, including 38 in Duval County and 10 in Webb County, and 29 in Nueces County.

In North Texas there were 45 permits, including 19 in Young County and 16 in Jack County. West Central Texas listed 19 permits, with 10 in Shackelford County.

There were 26 permits from the Panhandle with 11 in Gray County and 11 in Hutchinson County. West Texas operators obtained permits for 24 wells.

Hidalgo Well Wild

SOME OIL WITH GAS FROM BURNING WILDCAT

Mission. — Pantana Petroleum Corporation and Speed Drilling Company's R. E. Harding, wildcat in northeastern Hidalgo County, was still running wild and burning late in the week. The well was attempting to take a core at 7880 feet October 4, when it started to blow gas, immediately going out of control and commenced cratering. It is making a large volume of gas and showing some oil.

A number of small breaks have occurred in the ground as far as 150 feet from the well and apparently the crater will reach large proportions.

At the time the well blew out, a cementing truck was at the location. It, as well as the rig and all other equipment, has been lost.

This well is located in Lot 11, Block 94 of the Mestenas Grant, 7 miles north of Edinburg on the LaBlanca prospect. It is 650 feet east of Quintana Petroleum Corporation's Engleman 1, drilled to nearly 9000 feet earlier in the year. The Engleman well was abandoned after drill stem struck and derrick pulled in, killing one of the officials of the company.

The Harding test was contracted to 7900 feet and was only 20 feet short of the proposed depth when the accident occurred. It was planned to set casing and perforate in the several oil and gas sands encountered between 6500 and 7900 feet.

One of the outstanding features of the well is that it is the deepest producer in South Texas, the nearest in depth being Shell Petroleum Corporation's Yturria 1 in Willacy County, which recently opened the La Sal Viejo field at 7662 feet.

Unnoticed weak spots in tires can take a heavy toll. The same is true in the oil business—the inaccuracies in country and parish records in Texas and Lousiana can prove costly weak spots.

As the mapping agency for many of the major oil companies, we are providing their land and legal departments through our accurate Photographically Controlled Ownership Maps the means of studying in detail the differences existing between the deed description as of record and the actual conditions that exist on the land itself.

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COMPLETE 89

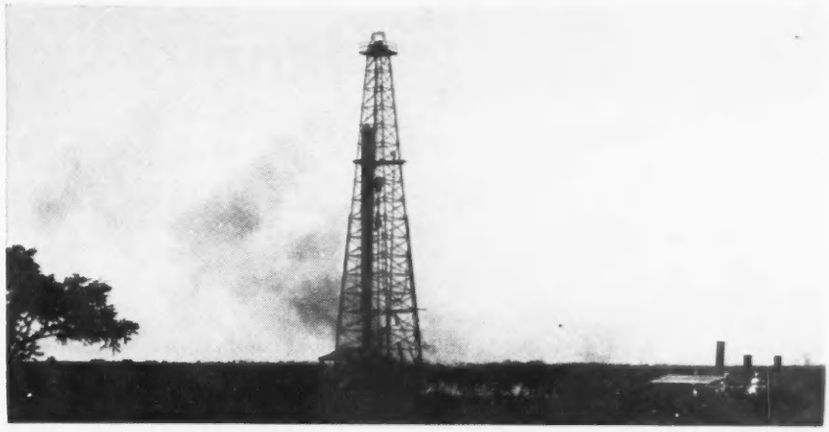
San Antonio. — Eighty-nine completions were reported in South Texas during the week just closed. Of this number 63 were oil producers showing an initial flow of 26,510 barrels per day. Three were gassers for initial productions aggregating 45,000,000 cubic feet per day. Eighteen were abandoned as failures, and 4 locations were eliminated.

Duval County, as usual, led in number of completions with 25, of which 20 were oil wells for initial flow of 7540 barrels. Three were failures, 1 was abandoned location, and 1 was a gasser. Nueces County was also active, with 1 gasser, 1 failure and 12 producers. The producers showed initial flows totaling 7737 barrels per day.

Laredo.—Ivan Howard et al's Frost National Bank, Webb County wildcat, is drilling ahead below 1800 feet after testing for a commercial gasser in a Mirando series sand at 1759-84 feet. The well, located SE NE Section 733, is 2 miles west of the Aviators field.

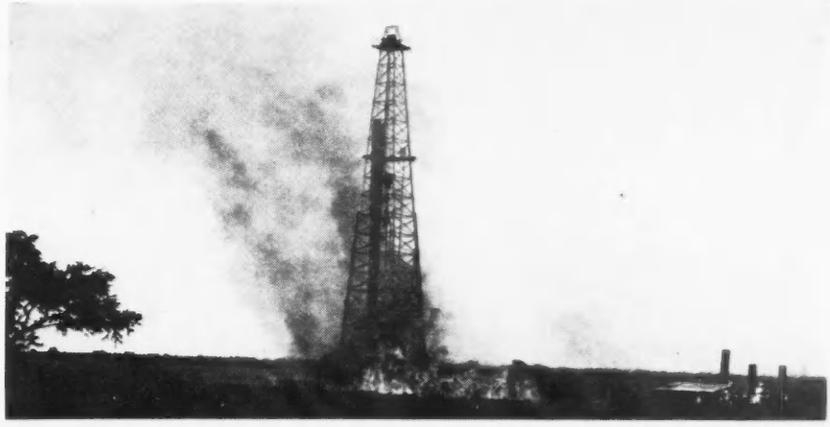
One mile southwest of the Seven Sisters field in Duval County, Harvey & Henderson's J. F. Welder Heirs 1, Section 102, tested 1500 feet of salt water in the Government Wells sand and is drilling ahead.

These four photographs tell a graphic story of the gas blowout and cratering which caused the loss of the Pantano Petroleum Company-Speed Oil Compand Harding 1, 7,840-foot wildcat 6 miles east of Edinburg, the night of October 5, Monday night.



1. This view shows the fire burning through shallow craters which opened up in the surface of the earth between the boilers and the 144-foot steel derrick. It was snapped within 10 minutes after the gas broke through the top of the ground.

2. This view shows flames leaping high into the air and racing toward the derrick after more than 100 workmen fled the scene. The picture was made about 25 minutes after the blowout.



3. Within 30 minutes after the blowout, flames from the cratering earth about the derrick enveloped the big rig.

4. Less than 40 minutes after the blowout, gas and oil blew through 5,600 feet of drill stem still in the hole, cleaning the hole of mud and permitting the well to run wild.

Two and a half hours after the blowout, the derrick and rig, two Halliburton trucks, a Union Sulphur Company mud-mixer and truck, 15,000 feet of drill stem, 8,200 feet of casing and 8,200 feet of tubing, were all in the crater.

Pictures by Brad Smith, McAllen, Texas.

Clay Creek Deep

SHOWING MAY LEAD TO "TREND" CAMPAIGN

WEEKLY STAFF REPORT

Houston.—Sun Oil Company's Lauter 1 on the southeast flank of the Clay Creek field, Washington County, was holding the interest of operators in the Texas sector of the Gulf Coast during the past week.

Lauter 1, N. Clay Survey, was waiting on orders to run screen and liner to make a production test of sands at 7455 feet, which is a new sand for the field. Operations were held up due to title conditions surrounding the well. Oil sands were cored several months ago and casing was run. After news of the showing was out an exciting lease play started around the flank of the field.

Lauter 1 was projected to 10,000 feet and after coring sands at 7445 feet a string of 7-inch casing was cemented. After acquiring additional leases and royalty protection in the area, operations resumed and cored a hard formation and then went into another sand at 7455 feet and drilled sand showing oil to 7471 feet. Evidence of oil was shown on the derrick floor when several stands of pipe were removed from the hole. The oil tested around 42 gravity.

Lauter 1 is 1200 feet from the northwest line and 450 feet from the southwest line of a 119.84-acre lease in the Nester Clay Survey. It is approximately ¾-mile south of shallow production.

The Clay Creek field was discovered in 1928 by Sun Oil Company, Grote 1 making 125 barrels of 25 gravity oil at 1154 feet. The field has been producing from the Cook Mountain, Mount Selman and Wilcox sands from 1150 to 1500 feet. Lauter 1 is supposed to be in the Wilcox formation and if it proves a commercial producer will open up a new trend for drilling along the northern border of the Gulf Coast and inland from the Conroe trend.

The second producer was completed at Cotton Lake field, Chambers County, which also extended the field one location east, last week when Glenn H. McCarthy finaled Kilgore 3, J. Townsend Survey, as the best oil well in the field.

On a potential test Kilgore 3 made 509 barrels of 28.8 gravity oil through a ¼-inch choke with a tubing pressure of 245 pounds. The casing was sealed off. The well is producing from the Marginulina sands at 6332 to 6337 feet. It is approximately 30 feet lower than the first producer. Five feet of oil sand was cored. Five-inch casing was cemented at 6331 feet. McCarthy is skidding the derrick 300 feet north and 100 feet east to drill Kilgore 4, which should be spudded the coming week.

Pan American Production Company's Craig 1, W. K. Wilson Survey, in the southwestern portion of the Dickinson field, Galveston County, which was completed the previous week from sands at 8300 feet and also extended the field east, flowed 516 barrels of 39 gravity oil on a potential test. The well was placed on a ¼-inch choke. Tubing pressure was 1025 pounds and casing pressure was 1450 pounds. The oil will be moved through a line laid by Humble Pipe Line Company.

Pan American Production Company has made location for Craig 2, 933 feet east of Humble Oil & Refining Company's Maco Stewart A-9, W. K. Wilson Survey.

Northwest of production in the southwestern part of the Dickinson field, Humble Oil & Refining Company completed Maco Stewart A-10 flowing 32 barrels per hour from sands at 8707 feet, through a ¼-inch choke, and had a tubing and casing pressure of 1700 pounds. The gas/oil ratio is 754 to 1. Maco Stewart A-10 was drilled and cored to 8707 feet and sand and shale showing oil was topped at 8683 feet. Seven-inch casing was cemented at 8696 feet.

At Turtle Bay in Chambers County, Sun Oil Company cored oil sand in C. J. Chambers 1, M. A. Carroll Survey, and also set 7-inch casing. The hole is bottomed at 6600 feet and sand showing oil was encountered from 6582 to 6597 feet. Seven-inch casing was set at 6572 feet. Preparations to drill plugs and make a production test were under way at the close of the week.

Another failure was reported for the Green's Lake field, Galveston County, last week when Sun Oil Company finaled Hughes 3, 933 feet southwest of Hughes 1 and in line with Hughes 1 and 2, W. C. M. Baker Survey, as a dry hole. The hole was bottomed at 6130 feet and after plugging back to 5992 feet the operators tested salt water. Plugging back again to 3920 feet salt water was swabbed and the hole was plugged and abandoned at 3920 feet.

On the northeast side of the Hastings field, Brazoria County, Humble Oil & Refining Company's C. Brown 2, Wm. Snyder Survey, was preparing to make a production test at the close of the week at 5962 feet. The hole was bottomed at 6150 feet and a gas sand was logged at 5909 feet. Sand showing oil was encountered from 6095 to 6118 feet. After testing this sand the hole was then plugged back to 5962 feet. Casing was perforated with 38 holes from 5910 to 5950 feet and 10 holes from 5960 to 5970 feet. A drill-stem test from 5978 to 6128 feet showed a 600-pound pressure through ¼-inch choke in 11 minutes. The test showed no oil.

Stanolind Oil & Gas Company's Brown B-4, northwest of production, H. & T. B. Section 29, was flowing into pits at the close of the week from sands at 5994 feet. The hole is bottomed at 6060 feet in oil sand with 7-inch casing cemented at 5795 feet.

One location north of production at Hastings, Stanolind Oil & Gas Company's A. R. Scott 1, H. & T. B. Section 29, was drilling cement plugs at the end of the week after setting 7-inch casing at 5753 feet in oil sand. Top of the oil sand was logged at 5317 feet. Bottom of the hole is at 6060 feet.

Stanolind Oil & Gas Company completed Edwards 2, Wm. Henry Survey, flowing 592 barrels through a ¼-inch choke in 22¼ hours from 6060 feet. The tubing pressure was 600 pounds and casing pressure 750 pounds.

Humble Oil & Refining Company announced location for Middleton C-1 at Anahuac last week. It is 5000 feet east of production. It is believed that a graben is between the Anahuac field and this location which is 466 feet from the west line and 1193 feet from the north line of the H. & T. C. Section 88, Chambers County.

Humble Oil & Refining Company purchased the balance of the interest held by Glenn H. McCarthy in the J. McGahey Survey, north of the Anahuac field. The company several months ago purchased half of McCarthy's interest in the area and the present purchase involves the remaining half of a 1/7 working interest in 976 acres. Consideration was not announced.

On the southeast side of the Anahuac field, Humble Oil & Refining

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls	Depth
ANAHUAC—		
Humble, Wilcox 3	696	7085
BLUE RIDGE—		
Aldridge & Taylor, W. Schenck 3	40	1956
Ben Barnett, Blakely C-1	¶½	2419
COTTON LAKE—		
Glenn H. McCarty, Kilgore 3	480	6337
DICKINSON—		
Humble, Maco Stewart A-10	768	8707
GREEN LAKE—		
Sun, Hughes 3	*	6130
HASTINGS—		
Stanolind, Edwards 1	648	6060
HULL—		
Gulf, Phoenix 112 (wo)	150	3615
MANVEL—		
Burton Drilling Co., Cooling 1	540	4060
sociation 23	¶2	4060
Texas Co., Houston Oil Field As-		
Lemer 3	376	4122
RACCOON BEND—		
Humble, Austin College 7	60	3250
Hardy B-6	192	4117
TOMBALL—		
Humble, Milo 6	240	5553
Shell, J. J. Key 1	432	5564
VAN VLECK—		
Skelly, Cobb B-9	550	8291

*Failures; †Junked; ¶Million cu. ft. gas.

Company was preparing to complete Middleton 22, H. & T. C. Section 58, at 7085 feet in oil sand. Top of the sand was logged at 6920 feet and 5½-inch casing was cemented at 7050 feet. The same operator's Middleton 23, H. & T. C. Section 58, was waiting on cement at the close of the week after setting 7-inch casing at 6685 feet. The operators intend to use Middleton 23 as a research well for the geological department.

Two new wildcat locations were announced in Brazoria County during the past week. Strake Petroleum Company made location for a test 4000 feet southwest of the operator's Poole 1, which blew out from 7506 feet and made gas and hot water. The wildcat is 1000 feet north of the intercoastal canal and on the west bank of Cedar Lake. Beaty, Bowles & Borsodi made location for Truska 1 in the Liverpool area, 236 feet from the northeast line and 467 feet from the northwest line of Lot 3, Block 7, H. & T. B. Section 6.

Republic Production Company and Houston Oil Company made location for a well in Tyler County. Hurd Fee 1 is 20,214 feet from the west line and 3856 feet from the south line of Norman Hurd Survey. It is reported that this well will be drilled in search of the same sand found in the operator's discovery well at Silsbee in Hardin County.

In Walker County, Roswell Oil Company made location for Osborn 1. It is 1000 varas north and 500 varas east of the southwest corner of J. Jordan Survey.

The Van Vleck field, Matagorda County, was extended 1800 feet north last week when Skelly Oil Company completed Cobb B-9, M. Cummings Survey. The well made 550 barrels per day through a ¼-inch choke with a tubing pressure of 800 pounds and a casing pressure of 900 pounds. It was drilled to 8291 feet and is producing from sands at 8237 to 8245 feet.

REAL COUNTY

San Antonio.—Sun Oil Company will seek production in the Ordovician lime horizon on a 20,000-acre wildcat block in Real County, Edwards Plateau region. Contract has been made for the drilling of Oppenheimer & Deiter 1, C SW SE Section 7, G. W. & T. P. Ry. Survey, about 20 miles east of Rock Springs, and in the north portion of the county.

Austin, Texas.—Attorney General William McCraw will be in Washington Monday to argue before the United States Supreme Court the Gladys McCook case.

This case is of unusual importance because of the question it involves. Under provisions of Texas tax statutes, the royalty owner is held liable for his share of the gross production tax. Attorneys for Gladys McCook and others seek to have the entire burden of tax payment placed on the operator.

The suit has been successfully defended by the state through the Texas Supreme Court and has been appealed by the McCook group to the United States Supreme Court. The ruling handed down will affect not only Texas statutes, but those of Oklahoma and New Mexico, which are similar.

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English Bayou Sand

WELL 300 FEET DEEPER AGAIN EXTENDS FIELD

Lake Charles. — A new oil sand was discovered on the northeast side of English Bayou field, Acadia Parish, last week when Union Sulphur Company completed Kaufman 2, Section 13-9s-8w, from a sand 300 feet deeper than the regular producing horizon. It was drilled to 7376 feet and encountered oil sands from 7371 to 7376 feet. A string of 4½-inch casing was set at 7373 feet. The well came in flowing pipe line oil at the rate of 700 barrels daily through a ¼-inch choke with a tubing pressure of 1120 pounds. No pressure was reported on the casing.

The well is approximately 750 feet north of Kaufman 1 which recently extended the field east in a 7082-foot sand. Kaufman 1 made 716 barrels of 41.2 gravity oil daily through a ¼-inch choke. After drilling Kaufman 2 below the 7082-foot sand it was thought that the test had cut a fault and would find the lower sands barren. However, five feet of sand was cored which was saturated enough to produce commercial oil.

After completing Kaufman 2, Union Sulphur Company made location for Kaufman 3, 2150 feet south and 300 feet east of the center of Section 13-9s-8w, which is south of Kaufman 1.

West of Kaufman 1, Fohs Oil Company finaled Castle 13 in the English Bayou field. The well produced 558 barrels daily through a ¼-inch choke with a tubing pressure of 475 pounds and a casing pressure of 1050 pounds. The hole is bottomed in oil sand at 7035 feet. Casing was cemented at the bottom and perforated with 10 holes from 7021 to 7031 feet.

Jennings Locations

After finding a new sand on the southwest side of Jennings field, Acadia Parish, Superior Oil Producing Company made two new locations. Eunice Crowley 1 is 980 feet south and 510 feet west of the northeast corner of Section 42-9s-2w; Jennings Heywood 1, 430 feet north and 150 feet east of the southwest corner of the Jennings Heywood tract in Section 42-9s-2w. Both wells are projected to the deep Marginulina sands.

On the northwest side of Gillis field, Calcasieu Parish, Union Sulphur Company finally abandoned Barbee Estate 8 at 6426 feet after testing salt water. The casing was perforated from 6420 to 6426 feet and salt water was swabbed. The hole originally was bottomed at 8871 feet, was plugged back and made a number of tests, all of which showed water.

Three new locations were made at Gillis last week by Union Sulphur Company: Barbee Estate 10, 11 and 12. Barbee Estate 10 is 379 feet north and 1071 feet east SEc SW SW Section 1-9s-8w. It is on the north side of the field. Barbee 11 is also located in Section 1-9s-8w and is an offset to Barbee Estate 10. Barbee Estate 11 is 2540 feet north and 1357 feet east SEc SW Section 1-9s-8w, on the northeast side of the field.

On the northwest side of the New Iberia field, Iberia Parish, Wm. Helis completed Bullock & Burke 2-A, Section 25-12s-7e, flowing at the rate of 550 barrels of 26 gravity oil daily from 4033 feet. Later the well made 1090 barrels through a ⅜-inch choke. The test was completed from sands at 3986 to 4033 feet. Seven-inch casing was cemented at 3950 feet.

The Texas Company's Hebert 1, Section 25-12s-7e, cored a new oil sand at New Iberia last week from 6231 to 6382 feet. At the close of the week it was still in sand showing oil at 6385 feet.

On the southwest side of the East Hackberry field, Cameron Parish, Independent Oil Company made location for Sanner 1, a semi-wildcat 370 feet west and 50 feet south NEc SW NW Section 29-12s-10w.

The Texas Company continued to drill deeper on Rigolets 5, Section 29-17s-24e, Lafitte field, Jefferson Parish, last week when it penetrated formations below 10,610 feet in the Oligocene. It is reported that the hole will be drilled below 11,000 feet and test all sands below 9950 feet. String of 13⅜-inch casing was cemented at 1353 feet and from that depth to 10,-

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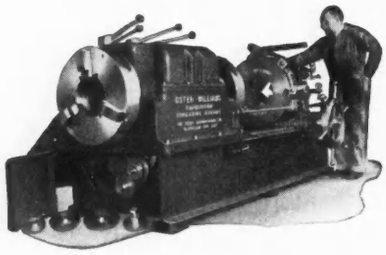

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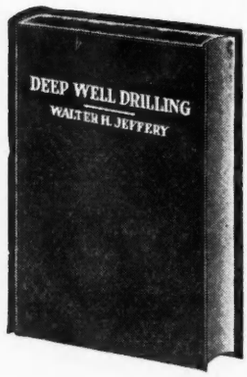

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3301 BUFFALO DRIVE **HOUSTON, TEXAS**

564 feet is open hole. Rigolets 5 has established a new record for open hole drilling in the Gulf Coast.

Lafitte is one of the deepest commercial producing fields in the world and stands a good chance of being the first to produce commercial oil below 10,000 feet. The previous week a new sand was discovered at 9950 feet, only a few feet short of being the deepest commercial producing sand in the world.

The Texas Company made two new locations on the east side of Lafitte last week. Lafitte 6 is 3676 feet east and 466 feet north of the southwest corner of Section 20-17s-24e. Rigolets 6 is 3676 feet east and 466 feet north NWc Section 29-17s-24e.

Approximately 11 miles west of Houma townsite, Shell Petroleum Corporation made location for Realty Operators 1-B. This is the second test for the company in this area. It is 440 feet north along the west line of Section 18-17s-15e from the southwest corner thence east at right angles 425 feet. The first test in this area was drilled to 10,157 feet and no shows of oil were reported.

On the northeast side of Tepetate field, Acadia Parish, Continental Oil Company was preparing to complete Welsh 6-A, Section 28-7s-2w, at 8306 feet. Oil sand was encountered from 8294 to 8308 feet, and 5¾-inch casing is cemented on bottom. On the southeast side of the field Continental Oil Company's L. W. Miller 2 was at completion stage. Casing has been cemented at 8315 feet. Slotted pipe will be set and a production test made.

Continental Oil Company's Hebert 1, Abbeville prospect, Section 20-12s-3e, Vermilion Parish, was fishing for 780 feet of drill pipe at the close of the week. While pulling the drill pipe the well tried to blow out again at 10,570 feet.

Shreveport. — Twenty-nine drilling permits were authorized last week by the minerals division, Louisiana Conservation Commission, of which 17 were in North Louisiana divided among the following parishes: Bienville, 1; Caddo, 11, of which 9 were in Rodessa; Morehouse, 1; Ouachita, 1; Union, 2; and Webster, 1. The 12 in South Louisiana were divided among the following parishes: Ascension, 1; Calcasieu, 4; Cameron, 1; Jefferson Davis, 1; Jefferson, 2; LaFourche, 1; and Plaquemines, 2.

SOUTH LOUISIANA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EAST HACKBERRY—		
Stanolind, Portis 1	*	6493
ENGLISH BAYOU—		
Fohs Oil Co., Castle 12	519	7050
Castle 13	558	7035
Union Sulphur Co., Kaufman 2	700	7373
GILLIS—		
Union Sulphur, Barbee Estate 8	*	8871
JENNINGS—		
Stanolind, Houesiere Latrelle 16 (wo)	100	7222
LAFITTE—		
Texas Co., L. L. E. Lafitte 5	500	9974
LEEVILLE—		
Gulf, Allen Land 11	100	3875
NEW IBERIA—		
Wm. Helis, Bullock & Burke 2	550	4033
PORT BARRE—		
Gulf, Wilson Cochrane 14	*	3350

*Failures; †Junked; ¶Million cu. ft. gas.

Rodessa Conference

EXPECT GAS/OIL RATIO ORDER TO BE PERMANENT

WEEKLY STAFF REPORT

Shreveport. — Governor Richard W. Leche of Louisiana is expected to call an informal conference with Rodessa operators to hear their recommendations on a gas-oil ratio order to supersede the 30-day temporary gas-oil ratio order for the Louisiana side of the field which went into effect September 15. It is likely that the next order, effective October 15, will be in the nature of a permanent order.

Data prepared by an engineering committee working for the Rodessa Operators Committee will be submitted to the governor and to Conservation Commissioner William G. Rankin as a recommendation for a basis for the new order.

These data show that the dropping of the bottom-hole pressure on the Louisiana side of Rodessa has been reduced since the September 15 order went into effect. From July 7 to August 27 the bottom hole pressure at Rodessa dropped 2.98 pounds per day while from August 27 to September 27 the bottom hole pressure drop was 2.64 pounds per day. Only 12 days under the gas-oil ratio order are included in this period and the major part of the halting of the drop occurred in those days. The gas cut-back for the month ending September was 200 million feet, reducing it from 600,000 million feet and the reduction in oil production for the same period was 6500 barrels, due to the cut back in gas. The September 15 order on a basis of 240 barrels daily allowable per well held the gas yield per well to 3 million feet on oil wells and 6 million feet on distillate wells.

NORTH LOUISIANA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSSIER PARISH (Bellevue)—		
Premier Inv. Co., R. E. Wyche 30, 14-19n-11w	12	432
CADDO PARISH (Pine Island)—		
W. D. Chew, Spell 1, 29-21n-15w	25	2122
RICHLAND PARISH—		
J. S. Morrissey, Jones 1, 15-18n-7e	*	3260
SABINE PARISH (Converse)—		
E. G. Cravath et al, Delaney 1, 31-9n-13w	10	2152
UNION PARISH (Monroe)—		
Nemours Corp., J. B. Langford 1, 10-21n-3e	¶1¼	2180
CADDO PARISH (Rodessa)—		
Magnolia, Spearman 3, 18-23n-15w	2000	6475
Tyson Unit 6, 13-23n-16w	1500	6036
Phillips, Rosa McDonald 3, 17-23n-15w	2000	6088
Red Iron Drilling Co., Means 1, 9-23n-15w	1500	6006
United Gas, Spearman 4, 22-23n-16w	1500	5985
Gibson Unit 2, 15-23n-16w	1500	5987
TEXAS		
CASS COUNTY (Rodessa)—		
W. F. Lacey, Bauguss 2, J. H. Rives sur	2000	6032
Tidewater, C. C. Chew 1, Jno. Collum sur	2000	5985
United Gas, Jones 4, B. J. Murray survey	2000	6050

*Failures; †Junked; ¶Million cu. ft. gas.

Extended Half-Mile

Red Iron Drilling Company's Means 1, SW NE 9-23n-15w, Caddo Parish, was completed last week flowing 8 barrels of distillate per hour through ⅛-inch tubing choke at 6006 feet to extend the northeast part of the Rodessa field ½-mile. Tubing pressure was 1750 pounds and casing pressure 900 pounds. Seven-inch casing was cemented at 5800 feet, 1 foot above the top of the Hill sand.

The Gloyd was topped at 5912 feet and from 5961 to 5969 feet saturation was fair and distillate showed, which is probably source of the production; elevation is 216 feet.

An edge test on the northwest part of the Cass County side of the field, Magnolia Petroleum Company's J. J. Moore 1, SEc 118-acre tract, John Collum Survey, after failing to produce in the lower horizon has been plugged back to 5930 feet for a test of the Dees horizon.

Besides Red Iron Drilling Company's distillate extension well, Rodessa added 8 other wells completed and gauged and one other in Cass County completed but waiting commission gauge. Magnolia Petroleum Company's Spearman 3, SW NW SW 18-23n-15w, a south edge test in the northeast part of the field which was drilled to 6475 feet was completed after plug in 7-inch casing set at 6080 feet was drilled out to 6031 feet. It gauged 8 barrels of oil per hour on ⅛-inch tubing choke.

Two other wells, not included in the completions list, were completed but lacked gauges: Snowden & Anding's Taylor 2, Section 23-23n-16w, in the Rodessa townsite, Louisiana side, and Herman Brown's R. P. Willis 1, John Collum Survey.

Rodessa had 23 new locations last week of which 16 were on the Cass County side, 11 of the latter being made by United Gas Public Service Company.

Shell Petroleum Corporation is reported negotiating with Producers Oil & Gas Company for purchase of one half the oil

rights to the latter's several thousand acres in and around the Sligo gas field, Bossier Parish, located in township 17, ranges 11 and 12 west. Sligo produces from the Glen Rose above the anhydrite and also from what is known as the Pettit "sand" below the anhydrite of the Glen Rose. One test was drilled to the Travis Peak and plugged back and completed in the Pettitt horizon.

Roy Sunby of Longview, Texas, has taken over J. E. Carlson and associates' Garland 1, Section 7-14n-14w, DeSoto Parish, and the 7000-acre block and will deepen to 3500 feet, after which and after a seismograph check has been made, it may be deepened to 6000 feet. The test is now down to 2165 feet.

Green Smitherman has obtained an extension of leases on the 10,000-acre block he has centering around Section 10-16n-1w, Jackson Parish. A. Taylor has been taking leases in township 17 north, range 1 west, in the same parish.

Sabine Parish

South of the shallow Pleasant Hill field, Sabine Parish, Earl Fox of Shreveport has assembled an 8000-acre block in township 9 north, ranges 11 and 12 west, for a test to spud before February 10.

Standard Oil Company of Louisiana is filling in a 3500-acre block it recently acquired in township 23 north, ranges 1 and 2 west, in the vicinity of the old abandoned shallow Oakland field, Union Parish, which produced some oil about 15 years ago. This block was detailed recently by a geophysical party.

In Bossier Parish, Arkansas-Louisiana Gas Company has a geophysical party working in township 23 north, range 12 west. In Madison Parish, a geophysical party recently has been working for Singer Manufacturing Company in township 14 north, range 10 east.

Shreveport. — Effective October 1, the two gas-distillate wells of J. P. Evans, in the Sibey field, Webster Parish, the only two producers so far completed and gauged in that field, which produces from the Glen Rose below the anhydrite, were pro-rated to 3 million cubic feet of gas daily. Under this allocation 1 well made 37 barrels of distillate in 24 hours and the other 41 barrels.

Shreveport. — United Gas Public Service Company's Skannal F-1, Section 26-17n-12w, Bossier Parish, Sligo district, was drilling ahead last week after showing oil in the Pettit sand, a gas-distillate producing level below the anhydrite.

El Dorado, Ark.—Four drilling permits, all issued to one operator to drill in the same quarter-section of Nevada County, were authorized last week by the Arkansas Board of Conservation. The permits were issued to L. M. Glasco of Tyler, Texas, for the following tests: Ritchie 1, center NW NW SE 10-14-20; Ritchie 2, center NE NW SE 10-14-20; Ritchie 3, center SW NW SE 10-14-20; and Ritchie 4, center SE NW SE 10-14-20.

NEVADA COUNTY SHOW

Wildcat shut down after drill-stem test

ARKANSAS — WEEKLY STAFF REPORT

El Dorado, Ark.—Benedum & Trees Oil Company's Groves 1, center N½ SW NW 10-14s-20w, Nevada County, 4 miles southeast of the old shallow Irma field, was shut down at 2278 feet last week after testing 800 feet of oil in a 25-minute drill stem test from 2248 to 2278 feet in what was identified as the Tokio horizon; elevation is 353 feet. The test had shown gas at 1225-85 feet in the Nacatosh and was dry at 1960 in the Ozan. It was reported additional acreage was being secured.

Joiner and associates (formerly Odel Hinson) were arranging to test a show of oil in a sand logged at 5536-64 feet in Montana Realty Company 1, NE NW NW 3-17-28, Miller County. Elevation is 225 feet. This test topped anhydrite at 4005 feet after logging top of red beds at 3505 feet. In the same county, McClanahan and associates' Miller Land & Timber 1, SW SW 2-18-28, was coring below 6155 feet after topping anhydrite at 5382 feet.

KEEP LOOKING

Modisett takes interest in Phillips block

El Dorado, Ark.—Joe Modisett of El Dorado has taken over for an interest in the block the 6000-acre tract of Phillips Petroleum Company in Bradley County, Arkansas, and is drilling a test in Section 28-16-12, now below 800 feet.

Much geophysical activity continues in South Arkansas. Lion Oil Refining Company recently sent a seismograph unit into Cleburne County. Ohio Oil Company has a unit working in townships 18 and 19, range 21. In Dallas County, Continental Oil Company has a unit working west of Star City and in La Fayette County Standard Oil Company and Stanolind Oil & Gas Company have units working in township 17, range 24, and township 15, range 23, respectively. Amerada Petroleum Corporation sent a geophysical party recently into Lee County, in township 3, range 3. Standard Oil Company still has a unit in Miller County, around township 17, range 28. Phillips Petroleum Company and Magnolia Petroleum Company have seismograph units working around the flanks of the old Irma field, Nevada County. Root Petroleum Company is shooting the Easton and May block in Hempstead County south of Fulton. Tide Water Oil Company has a seismograph crew working in Ouachita County between Camden and Stephens. In Union County, Federal Petroleum Company and Mid-Continent Petroleum Company have geophysical crews in township 18, range 12, and townships 18 and 19, ranges 16 and 17, respectively.

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Two at Lance Creek

WYOMING REPORTS ACTIVE DRILLING THROUGHOUT STATE

ROCKY MOUNTAIN FIELDS

WEEKLY STAFF REPORT

Casper, Wyo.—Two oil wells completed, one was testing, and one new well started in the Lance Creek field, Niobrara County, eastern Wyoming, this week. The Ohio Oil Company's Elizabeth Lamb 1, C NE NE 5-35n-65w, flowed 2400 barrels of oil and 2,500,000 cubic feet of gas initial from the Sundance at 3947-3999 feet. Hole bottoms at 4010 feet in the red beds.

The Ohio Oil Company's Richards & Comstock 3, 220 feet from the north and 630 feet from the east lines of 32-36n-65w, in the north end of the field, gauged 600 barrels of oil and 1,000,000 cubic feet of gas initial. The basal Sundance was logged at 3773-3861 feet, with total depth at 3869 feet. The company is rigging up rotary for Carrie Putnam 6, C NW NW 4-35n-65.

Continental Oil Company's Emil Rohlff 1, C SL SE NW 32-36n-65w, an outside location on the northwestern edge of the field and a direct north offset to The Ohio Oil Company's Richards & Comstock 3, is swabbing in and testing with diffident results, and apparently will establish a northwestern limit to the Sundance pool. The well is swabbing at around 15 barrels daily. The well logged dry sand in the Sundance at 3732-3834 feet, oil saturation 3871-3931 feet, 3936-3941 feet limey sand, and 3941-3958 feet hard sand. The well went into the red beds at 3961 feet and stopped at 3967 feet. Elevation is 4365 feet.

Continental Oil Company's Schuricht 2-B, SE SW 6-35n-65w, in the southern end of the field, is drilling at 714 feet after setting 12-inch surface casing at 347 feet. The company's Dielman 2-A, NW NE NE 7-35n-65w, is waiting on rotary.

Argo Oil Company's Elliott 5, C NW NW 5-36n-65w, is drilling at 2394 feet. A. B. Cobb and Holly Development Company's Novak 1, NE SE SW 6-35n-65w, is drilling at 2230 feet.

The J. M. Huber Corporation is starting to drill plug in Joss 1, NE SE NW 6-35n-65w, outside location on the west side of the field, after cementing 150 feet up the 7-inch production string under pressure from 4034 feet. The well has been shut down for the past several months after operators drilled into oil and then water in the basal Sundance. Well will be drilled in slowly and wall scraper run in an effort to complete at a depth above water stratum.

On seismograph location a mile south of the nearest Lance Creek production Adams-Louisiana Company's A. L. Spaugh 1, C NW NE 18-35n-65w, is drilling at 1942 feet.

Four miles south of the Lance Creek field, H. V. Ellwell of Wichita, Kansas, and Adams-Louisiana Company are moving in material for Sam Joss 1, C S½ SE NW 1-34n-66w, Harney Creek district, Niobrara County. The well is spotted on a seismograph location.

Laramie Basin Fields

The California Company, Rocky Mountain operating subsidiary of the Standard Oil Company of California, is digging cellar and pits for Vallie G. Bath 1, C NW NW 4-16n-75w, to test through the Sundance formation in the Little Laramie structure, Albany County.

Elevation is 7158 feet. The surface structure at Little Laramie is a long narrow north-south trending anticline with 800 feet of closure. It is approximately 4 miles long and 1½ miles wide. The surface formation is Steele shale, partially covered by Quaternary, but the Shannon sand is exposed on the north end. The test was spotted following a seismograph survey.

The Union Oil Company of California drilled two failures on Little Laramie in 1928. Union's Herrick 1, NE SW 1-16n-76w, drilled to 2212 feet and had water in the Dakota. Bath 1, SE NW 33-17n-75w, drilled to 2277 feet in the Dakota and had water.

In the Quealy Dome field, Albany County, California Company's Holst 4, SE 13-17n-77w, is drilling at 2531 feet.

The Ohio Oil Company's wildcat on the East Big Hollow structure, Albany County, was abandoned this week with water in the Satanka shale. The well, Elisabeth Stiles 1, SW C 21-15n-75w, tested water at 2840 feet, casing point of the 4¾-inch casing, to 2960 feet plugged depth. A week ago the well had water from 2840 to 2900 feet after plugging back from 2978 to 3003 feet in the Tensleep where water developed. The Satanka shale is a local formation in Big Hollow area and correlates with the Embar lime in other Wyoming districts.

In the Rock River field, Carbon County, The Ohio Oil Company's Harrison-Cooper 11, NE SW SW 35-20n-78w, is drilling at 2360 feet and will complete in the Sundance at around 3300 feet.

Northern Wyoming

One well was near completion and one new well got under way in the Byron field, Big Horn County. The Ohio Oil Company's Irene Lindsay 1, C NW SE 25-56n-97w, is drilling out plug with 7-inch production casing set in the top of the Embar saturation at 5080 feet. The Embar formation was topped at 5065 feet.

The Ohio Oil Company's Smith 2, W NW SE 35-55n-97w, Garland, is drilling at 3838 feet and nearing objective, the Madison lime at 4000 feet. Peter Evanoff's McAllister 1, NW NE SE 3-55n-97w, is drilling at 2837 feet.

In the Badger Basin field, Park

MOUNTAIN STATES

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA		
GLACIER COUNTY, (Cut Bank Field)—		
British-American, Tribal 11, lot 7, 10-34-6w	42	2931
TOOLE COUNTY, (Kevin-Sunburst Field)—		
Clara Oil Co., Waite 9, se se ne 24-35n-2w	24	1500
WYOMING		
NIOBRARA COUNTY, (Lance Creek Field)—		
Continental Oil Co., Otto Rohlff 7, cnw sw 32-36n-65w	700	3950
WESTON COUNTY—		
Ohio Oil Co., Elizabeth Lamb 1, cne ne 5-36n-65w	2400	4010
(Osage Field)—		
Wheedon Oil Co. 16, csw sw 16-46-63	¶¼	421
COLORADO		
ARCHULETA COUNTY—		
Wm. E. Hughes Estate Fee 10, 24-33n-2e	778	....
YUMA COUNTY—		
Indian Territory Oil Co., Strangways 1, cnw sw 21-2s-43e	*	5595

*Failures; †Junked; ¶Million cu. ft. gas.

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County, Resolute Oil Company's State 1, C NW SW 16-5n-101w, is drilling at 7856 feet.

Tri-State Gas Area

Mountain Fuel Supply Company's State 1, NW SE 17-3n-24e, Clay Basin gas field, Daggett County, northeastern Utah, is nearing its objective, the Dakota series, and is drilling at 5700 feet.

In Moffatt County, northwestern corner of Colorado, Continental Oil Company's Henderson 1, SW SW SW 16-3n-91w, Thornburg gas field, is making a second test of the Sundance formation after deepening to 2605 feet. A week ago the well yielded a million cubic feet of gas daily between 2552-75 feet in the Sundance where cores showing oil saturation have been recovered. If the well fails to develop commercial oil production in the Sundance it will be deepened to the Pennsylvanian series.

On the Powder Wash gas structure, Moffat County, Mountain Fuel Supply Company's Carl Allen 1, NE SW SE 32-12n-97w, is drilling at 4212 feet. Georgia Kuykendall 1, NE NE SE 22-12n-100w, Hiawatha field, Moffat County, is drilling at 2664 feet.

Important Search

MUCH INTEREST ATTACHED TO NEBRASKA WILDCATS

Tulsa.—Operators in the Mid-Continent and Rocky Mountain areas are following with increased interest the wildcat activity under way in Nebraska in an attempt to extend the prolific Sundance trend to the east from the Lance Creek sector of Wyoming. In the opinion of some observers, the present program may develop into the most important purely explorative work of recent years.

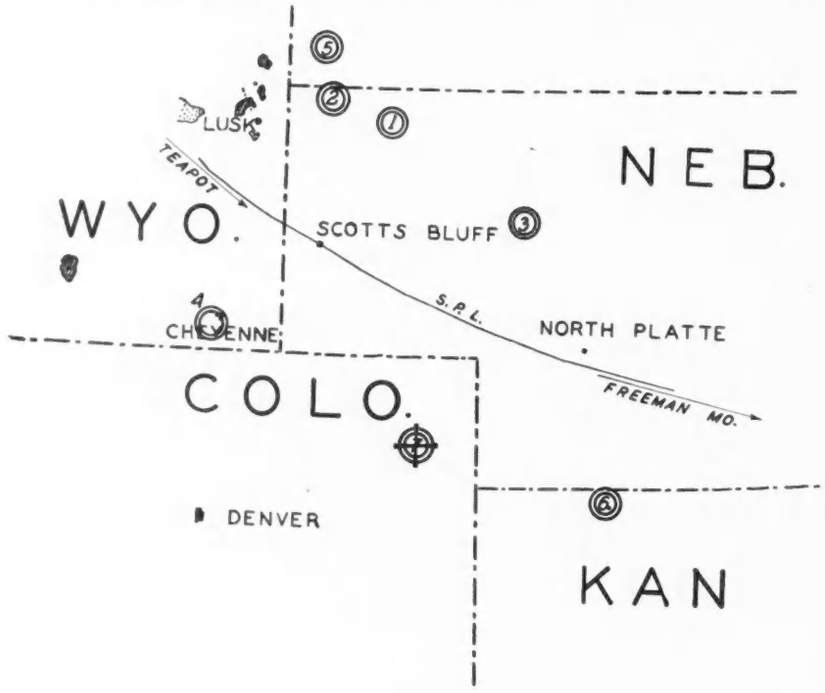
Western Nebraska has been repeatedly favored in geological reports of structural features, although detailed analysis has been difficult due to surface sands and recent surface sedimentation that may or may not be indicative of subsurface formations. Seismic surveys made within the past year by a number of interests have resulted in the location of various highs in Nebraska. A direct trend relationship to the Barton Arch production of Kansas is considered doubtful although earlier surface surveys have indicated an extension of the arch at least a short distance into Nebraska. A number of operators consider the extension of the Wyoming formations into western Nebraska the more probable of the two present assumptions.

Lance Creek field, Niobrara County, Wyoming, was proven in the Sundance sand two years ago for greater production than had been obtained in more shallow formations. This discovery, following closely upon the finding of production in the same formation in the Big Medicine Bow field, gave the necessary impetus to present wildcatting. The Sundance in Lance Creek consists of four individual but related strata, separated by shale breaks. The sands are of 9-14-25 and 43 feet respectively, with breaks of 36-90 and 25 feet. The average top is below 3700 feet.

In considering probable development, the fact that Stanolind Pipe Line Company is reconditioning its Clayton tank farm line to Freeman, Missouri, may provide an early outlet for obtained production.

The three tests going down in Nebraska are east and south of the Lance Creek sector near Lusk. On the accompanying map, No. 1 indicates Stephens Petroleum Corporation's S. J. Palmer 1, NWc NW SW 1-33n-50w, Dawes County, which is drilling below 1400 feet. No. 2, J. M. Huber Corporation's Morgan 1, CSW SW 32-35n-56w, Sioux County, drilling below 1700 feet. In Grant County, No. 3 is Byrd-Frost, Inc., and Magnolia Petroleum Corporation's No. 1, 11-24n-38w, drilling near 1700 feet.

Location No. 5 is South Dakota Oil Company's 1-X, SE NE SE 20-10s-4e, drilling below 3200 feet. Eight miles southwest of Cheyenne, Amerada Petroleum Corporation's Morton 1, CSW SW 13-13n-68w, Laramie County, is drilling near the 4500-foot marker. An important test for eastern Colorado, Indian Territory Illuminating Oil Company's Strangways 1, CNW SW 21-2s-43w, Yume County, encountered granite at 5595 feet and has been abandoned. On the map it is shown as No. 7. Following the present northwest trend of Kansas wildcatting, Winkler & Koch have spudded Vessey 1, C NW SE 26-3s-26w, Decatur County. Rotary tools have been rigged up although the well is shut down, and is indicated as location No. 6 on the map.



CUT BANK WIDENED
Three-mile extension adds 5000 acres

Cut Bank, Mont.—Approximately 5000 acres were added to Cut Bank proved area this week when H. F. Patterson's Chatterton 1, C SE SE NE 22-32n-6w, 3 miles south and west of the nearest production, completed for an oil well. The test swabbed 96 barrels initial from the Cut Bank sand at 3305 to 3315 feet, total depth.

Completion of the well is expected to call for another lease sale of Blackfeet Tribal lands as the test indicates an extension of the field to the west further into the reservation.

The Texas Company completed 2 wells in the field this week. Hardwick 1, C SE NE 17-32n-5w, pumped 156 barrels initial with total depth at 3000 feet. Tribal 122, Lot 2, 6-32n-5w, pumped 90 barrels initial. Hole bottoms at 2933 feet.

With Imperial Oil Company again purchasing crude 100 percent through its Toronto Pipe Line Company accounts in the Cut Bank field, the gloom that has pervaded the northern Montana marketing picture is lifting. Montana Power Gas Company wells which have been shut down for the past several weeks started producing at capacity this week while recent Cut Bank completions which shut down on finishing are seeking pipe line connections.

With the Bureau of Indian Affairs' refusal to grant a postponement of drilling obligations on Blackfeet leases, requirements call for the starting of 15 wells in the western part of the field immediately. On August 10, Cut Bank operators petitioned the bureau for a reprieve from drilling until marketing conditions became settled.

Kern Test Finds Sand

GOING DEEPER SEEKING MORE THAN 10-FOOT STREAK

WEEKLY STAFF REPORT

Los Angeles.—Lincoln Petroleum Company's Well 1, Section 12-26s-20e, Kern County, cored through a 2-foot shale break and encountered 10 feet of oil sand 1617-1627 feet. Depth is 1805 feet in gray sand and shell. It is believed that thicker deposits of oil sand may be found under more substantial shale bodies or up the dip to the west. Location is north of the Lost Hills field about 1 mile and northeast of the extended structural axis. The oil sand occupies an overlap on the flanks of steeply folded Miocene shales.

Associated Oil Company's Williamson 4, Section 2-26s-20e, was completed September 25, pumping 460 barrels a day gross fluid cutting 6.5 percent sand. The oil tests 13.7 gravity. Depth is 1785 feet plugged with cement 1550 feet, with 8⅝-inch water string cemented 1375 feet, and 186 feet of 6⅝-inch liner, including 170 feet perforated, landed 1550 feet. This is the largest completion in the recently discovered Williamson area 1¼ miles north of the Lost Hills oil field. Location is 490 feet north and 165 feet east from south corner Section 2-26s-20e.

Associated Oil Company's Taylor 1, located ¾ miles northeast of Williamson 4 in Section 1-26s-20e, is still being cored ahead in gray sand with streaks of shale at 5075 feet.

Western Gulf Oil Company's Southern Pacific Land Company 3, wildcat well at the mouth of Cantua Creek in Section 3-17s-15e, 45 miles southwest of Fresno, was tested with the packer set in the liner above 8430 feet, but the test was not conclusive. Depth is 8531 feet, with top of the Domengine sand (middle Eocene) cored at 8430 feet. Prior to the test, a 6⅝-inch blank liner was cemented at 8529 feet and gun perforated 8430-8529 feet. The liner will be re-perforated.

Frank Goldman's Keene 3, located on a 40-foot strip of land in Section 22-32s-23e, 1 mile southeast of Taft, was completed September 28, pumping 600 barrels a day of 17.0 gravity oil cutting 12 percent. Present production is 750 barrels a day of 17.0 gravity oil cutting 8 percent. Depth is 2126 feet, with 8⅝-inch water string cemented at 1510 feet and 654 feet of 6⅝-inch liner including 617 feet perforated, landed at 2126 feet.

Reserve Oil & Gas Company's Tejon 33-2, wildcat well in the Grapevine area 30 miles south of Bakersfield, flowed on the compressor for 3 hours at the rate of 15-20 barrels an hour and then sanded up and the compressor blew up. It is also thought that the liner has collapsed. Tubing will be pulled to determine the condition of the hole.

Reserve Oil & Gas Company's Ritchie 33-1, ½ mile southwest of Tejon 33-2, above, is being rigged up to test and deepen. An electrical log of the interval 4700-5225 feet indicated 3 good oil zones. The 6⅝-inch liner will be pulled and 2 or 3 cores will be taken below the present depth of 6035 feet, before a production test is made.

Birch-Royer Oil Company's Patchett 1, wildcat well east of the Arroyo Grande field in Section 33-31s-13e, was abandoned at 2357 feet. No showings of importance were encountered.

Coring Deep

Signal Finance Corporation's Woods 1, wildcat well 1 mile east of Hawthorne in Section 10-3s-14w, is being cored ahead at 9278 feet in shale with streaks of sandy shale. This project is at present the deepest drilling well in the Los Angeles Basin. It is located about 3¼ miles east of the El Segundo field and 2½ miles west of the Athens area of Rosecrans field. Operator intends to core ahead to the basement schist or to the basal conglomerate zone which may overly it at that location. Top of the schist at El Segundo varies between 7350 feet and 7500 feet deep.

Pan American Petroleum Company's Kleinmeyer 1-C, 5 miles west of Long Beach in Section 20-4s-13w, is being cored ahead in Miocene shale at 6310

CALIFORNIA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
KETTLEMAN HILLS—		
Kettleman No. Dome No. 38-18J	1885	8911
No. Kettleman O&G Co., Lillis-Welch 1	*	11,147
EDISON—		
A. T. Jergins Trust, Texas-Fee 23-5.	35	1995
FRUITVALE—		
Western Gulf, K.C.L. B. 22	150	3675
MIDWAY-SUNSET—		
Frank Goldman, Keene 3	750	2126
MOUNTAIN VIEW—		
Hogan Pet. Co., Foster Com. 5	150	6159
LOST HILLS—		
Associated Oil Co., Williamson 4	380	1785
SAN LUIS OBISPO COUNTY—		
A. T. Jergins Trust, Roderiguez 1..	*	3654
Birch-Royer Oil Co., Patchett 1	*	2357
MONTEBELLO—		
St. Helens Pet. Co., Monterey 19	25	3875
Monterey 20	25	3710
RICHFIELD—		
Union, Chapman 30	210	4400
WILMINGTON—		
Sovereign Oil Co., Advance Truck 1.	220	3690

*Failures; †Junked; ¶Million cu. ft. gas.

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LAYNE & BOWLER CO.
HOUSTON, TEXAS

feet. This well is at the north edge of the Wilmington field and will be made a deep test of its locality similar to General Petroleum Corporation's Terminal 1 at the south edge of the field.

General Petroleum Corporation's Terminal 1, Section 4-5s-13w, successfully completed its recently reported fishing job and is being cored ahead at 6589 feet in Miocene shales. This well has furnished food for a great deal of theorizing due partly to its upper showings, and due in part to the fact that the basement complex has not yet been encountered even though the well is located only 6 miles east of the crest of the Palos Verdes hills where the schist outcrops at an elevation of 1200 feet.

Crude Oil Drilling Company's well No. 1, wildcat well in the Gardena area 20 miles south of Los Angeles, is being drilled and cored ahead at 5360 feet in shale with streaks of hard sand and shell. Top of the Repetto (lower Pliocene) was cored at 3850 feet and top of the Miocene oil sand is expected at about 5800-5900 feet.

Universal Consolidated Oil Company's Carrell 1, located about 1 mile northwest of Crude Oil Drilling Company's 1, above, in Section 36-3s-14w, has set foundations for the rig. The surface formations at this location are so hard that it was necessary to shoot with dynamite before excavating with a steam shovel. This fact is believed to indicate that the well is located on a structural "high" and that if this were not the case, these hard surface formations would be buried below younger deposits.

Continental Oil Company's Bixby 39, deep test in Seal Beach 5 miles east of Long Beach, is being plugged back, gun perforated, and tested in stages, so far without encouraging results. Depth is 6445 feet, with 7-inch casing cemented 5882 feet, and 618 feet of 5½-inch blank liner cemented on bottom at 6445 feet.

JACKSON SURVEY

Jackson, Miss.—Because several wells in the Jackson gas field are reported to have built up pressure between the surface casing and the regular casing string set at the 2400-foot producing horizon, the Mississippi State Planning Commission has asked the United States Bureau of Mines to send an engineer to the field for a survey and giving of a report. It is likely that within two months a bureau representative will be sent to Jackson from Dallas, Texas. Besides the building up of the pressure referred to there have been several surface seepages reported and a test recently blew out and cratered at the 1100-foot Wilcox level, another well being completed at that level as a gas producer.

The latter well is State of Mississippi's Fee 3, Section 25-6n-1e, Hinds County, completed at 1107 feet making an estimated 50 million feet of gas open flow with rock pressure of 465 pounds, and it will be deepened to the regular Midway gas horizon at 2400 feet. It is believed this is a stray gas and will not last. After E. R. Owen, contractor for 5 wells on the state's 1320 acres completes the other wells he will deepen Fee 3.

State of Mississippi's Fee 1 in the same section was the well that blew out and cratered in this horizon at 1155 feet.

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STATE WINS SUIT
Court holds Michigan takes title in tax sale

WEEKLY STAFF REPORT

Mt. Pleasant, Mich.—The right of the state conservation department to reserve minerals in homestead tax lands was upheld October 5 by the Michigan supreme court. The supreme court reversed the circuit judge decision where the constitutionality was questioned of the act creating the old public domain commission, which gave the present conservation department the power to withhold oil and other mineral rights in lands to which it sold or transferred surface rights.

The supreme court decision was precipitated by a suit brought by Knick Krench of Detroit against Fortney Oil Company, the state and others. Fortney Oil Company drilled a producing oil well in Horton township, Ogemaw County, September, 1935, on a lease originally executed by the state to Shell Petroleum Corporation. Krench, who had purchased the land after execution of the mineral deed claimed title to minerals on the grounds that the state was without constitutional authority to divorce minerals from surface rights on property reverting to the state through delinquent taxes.

The supreme court held in part, "that the state holds title in fee, and like any owner may deed it with the reservation of the oil, gas and minerals."

The case had thrown a cloud over approximately 60,000 acres of land previously leased by the state for development with plans for drilling sidetracked. Since 1929 the state has received approximately a half million dollars in rentals, bonuses, royalties and fees from oil and gas leases on state lands.

The act giving the state the right to reserve minerals was passed in 1909 and later amended in 1929.

MICHIGAN
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ISABELLA COUNTY—		
Dibble Brother's Irwin 1, nw nw nw, 26-16n-4w	650	3702
KENT COUNTY—		
Michigan Oil Exploration's Croff 1, ne sw nw, 35-7n-9w	*	5575
MACOMB COUNTY—		
H. H. Brown's Stepnitz 1, Private Claim 546-2n-13e	*	600
MECOSTA COUNTY—		
Colmur Oil Co.'s Bell 1, c ne nw, 6-14n-8w	*	3841
MIDLAND COUNTY—		
Brehm-Hollman's Coleman Bank 1, ne se nw, 19-15n-2w	200	3103
Pure Oil Co.'s Root 2, s½ nw sw, 2-13n-2w	45	3450
Root C-10, sw sw nw, 20-13n-1w	90	3449
MONTCALM COUNTY—		
R. C. Lentz's Zayacz 1, se sw sw, 7-9n-14w	¶½	1210
OGEMAW COUNTY—		
W. J. Bernier's Ixqorski 1, ne ne ne, 23-22n-1e	30	2740
T. F. Caldwell, Inc.'s Fair Grounds 3, ne nw se, 19-22n-2e	40	2690
Muskegon Dev. Co.'s Garnett 3, nw se nw, 28-22n-2e	¶¼	1900
Webber Oil Co.'s Fisher 1, ne sw nw, 35-22n-2e	110	2700

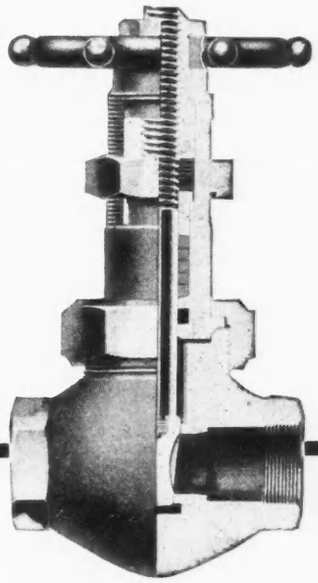
*Failures; †Junked; ¶Million cu. ft. gas.

EASTERN FIELDS

WEEKLY STAFF REPORT

Completions

Company, Well and Location	Init. Prod. Bbls	Depth
OHIO		
ALLEN COUNTY—		
J. A. Copeland, Kelley 2	20	....
Davis & Jones, Post 1	4	....
HARDING COUNTY—		
Kenton O & G Co, Zeigler 1	¶	....
SANDUSKY COUNTY—		
Klinberg & Co., Bowe 2	2	1276
MERCER COUNTY—		
A. A. Lauber, Ebbling 1	10	....
STARK COUNTY—		
Lyons & Co., Hiram Shaub 1	¶	4605
Hanson 1	*	3981
ATHENS COUNTY—		
Moore Farm O & G Co., Variety 1	¶	....
CUYAHOGA COUNTY—		
Ohio F. G. Co., Wilson 1	¶	....
KNOX COUNTY—		
Robert Bright & Co., Hancock 1	*	....
Ridgeway & Co., Rice 1	*	....
LICKING COUNTY—		
H. A. Scott & Co., Kemp 1	117	....
Alexander Bank & Co., Hirst 5	2	....
MEDINA COUNTY—		
E. R. Edson & Son, Wideman 35	¶	....
Oko O. & G. Co., McVicker 50	*	....
Ohio F. & G. Co., Grabbenstiller 1	*	....
Houck 1	*	....
MUSKINGUM COUNTY—		
E. H. Everrett Co., Montgomery 2	90	....
NOBLE COUNTY—		
L. A. Patton, Shilling 10	*	....
PERRY COUNTY—		
Ruth & Strong, Nuzum 16	7	....
Gas Prod. Co., Lonas 2	¶	....
Preston Oil Co., Swinehart 1	¶	....
ASHLAND COUNTY—		
Dill & McFrederick, Lindsey 1	*	....
Newcomer 1	¶	3360
WAYNE COUNTY—		
Ohio F. G. Co., McMasters 1	*	3032
HOLMES COUNTY—		
Wooster Drl. Co., McCluggage 1	¶	3310
MEDINA COUNTY—		
Robinson & Co., Allis 4	8	....
ATHENS COUNTY—		
Ohio F G Co., Carpenter & Glazer 1	4	333
Carpenter & Glazer, Smith & Bean 12	1	163
Bean 13	*	221
Leeper & Co., Grosvenor 12	*	1065
A. D. Townsend, Bobo 1	¶	1647
WASHINGTON COUNTY—		
Swingle & Co., Palmer 31	1	580
W. V. Torner, Torner 1	2	834
GUERNSEY COUNTY—		
Wilber Keith & Co., McCullough 3	¶	1044
Kernodle & Hammond, Tingle 4	*	1596
George Jewell & Co., Turnbaugh 4	*	1073
MEIGS COUNTY—		
Marshall & Reed, Romine 3	¶	954
MONROE COUNTY—		
Pure Oil Co., Unger 1	¶	1886
NOBLE COUNTY—		
George Robinson & Co., Israel 1	¶	1762
Chasseville Oil Co., Finley 3	¶	920
James W. Rich, Ferguson 1	¶	1471
MEDINA COUNTY—		
Ohio F. G. Co., Newcomer 1	¶	985
ASHLAND COUNTY—		
Ohio F. G. Co., Shank 1	¶	2645
SUMMITT COUNTY—		
Brooks Johnson, Stevenson & Pendegrast 1	¶	680
RICHLAND COUNTY—		
Harmon & George, Snook 1	*	....
STARK COUNTY—		
McFarland & Co., Killinger 3	*	4102
KNOX COUNTY—		
Ohio F. G. Co., Giffin 1	¶	2927
LICKING COUNTY—		
Ohio F. G. Co., Clemm 1	¶	635
Preston Oil Co., Baughman 1	4	3226
MUSKINGUM COUNTY—		
Ohio F. G. Co., Shaw 1	*	3495
WYANDOT COUNTY—		
Coyle & Temple, Billhardt 9	7	1365
KNOX COUNTY—		
I. E. O'Hail, Hipp 4	¶	2827
LICKING COUNTY—		
Hope Cons. & Refg., Cartrall 5	65	2983
GUERNSEY COUNTY—		
Orland & Bertha Fogle, Ferguson 3	*	1960
George McLaughlin & Co., Rainy 3.	¶	1079
D. T. Orndoff, Stewart 1	*	1296
ATHENS COUNTY—		
Ohio F. G. Co., Henry 4	¶	1501
VINTON COUNTY—		
Kelch O. & G. Co., Boyd 1	*	837
WASHINGTON COUNTY—		
Williams Bros., Board 3	*	1212
Ohio F. G. Co., Gage 1	*	1182
MONROE COUNTY—		
H. M. Scharet, Draper 2	¶	1230
Henry O. & G. Co., Mendenhall 1	*	1834
PERRY COUNTY—		
Ohio F. G. Co., Griffith 1	15	3215
Preston Oil Co., Combs 1611	7	....
HOCKING COUNTY—		
Nelsonville Land & Coal, Kachelmacher 1	4	604
WEST VIRGINIA		
BRAXTON COUNTY—		
Pittsburgh-W. Va. Gas Co., Ramsey 7889	10	2000
DODDRIDGE COUNTY—		
W. J. Grible, Smith 3	¶	2910
PLEASANTS COUNTY—		
J. C. Ruckman, Fee 1	¶	609
LOGAN COUNTY—		
Boone Coal Co., Fee 1	¶	3150
MONONGALIA COUNTY—		
West Va. Gas Co., Hennen 5404	¶	3508
BOONE COUNTY—		
Owens Illinois Gas, Vickers 1	¶	....
Stollings 1	¶	....
McKinney 1	¶	....
Ballard 4	¶	....
Cassingham 22	¶	....
LINCOLN COUNTY—		
Little Coal Land Co., W. A. Kingery & Co. 1	¶	....
Owens Illinois Gas 15	¶	....
Huntington Dev. Co., Caldwell 1	¶	....
KANAWHA COUNTY—		
G. L. Cabot, Inc., W. Tompkins 8	*	5089
MARSHALL COUNTY—		
G. B. & A. C. Patterson, McCleland 1	20	1761
WETZEL COUNTY—		
Lloyd McIntyre & Co, Lemaster 1	10	2969
BOONE COUNTY—		
United F. G. Co., Horse Creek 4624	¶	....
E. R. Cameron, Alderson 3	¶	....
Pond Fork O. & G. Co., Croft 3	¶	....
CABELL COUNTY—		
United F. G. Co., J. Gill 4671	¶	....
Ky-W. Va. Gas Co., J. McComas 1	¶	....
CALHOUN COUNTY—		
F. F. McIntosh, J. W. Schoolcraft 1	¶	2010
GILMER COUNTY—		
Marsey & Jarvis, Vestie Ward 2	¶	1097
Jackson & Garrison, Avon Allison 1	¶	1530
KANAWHA COUNTY—		
G L. Cabot, Inc., W. Tompkins 8	*	5089
Benedum Trees Co., Mary C. Winfield 2	¶	4998
LINCOLN COUNTY—		
United F. G. Co., S. Adkins 4665	¶	4665
MARION COUNTY—		
Victor Tennant, Kuhn 1	¶	2500
MARSHALL COUNTY—		
G. B. & A. C. Patterson, McClelland 1	20	1761
RITCHIE COUNTY—		
McGregor Hrs., J. T. Dom 1	¶	2204
W. P. Mosser & Co., Prunty 1	¶	....
UPSHUR COUNTY—		
Cumberlans Allegheny Co., Talbot 1	¶	3938
WASHINGTON COUNTY—		
R. M. Duden & Co., E. J. Johnson 1	*	6065
WIRT COUNTY—		
Waggoner Co., Leving 1	¶	....
KENTUCKY		
McLEAN COUNTY—		
Blowers, Barrett & Ellis, P. Martin 1	100	....
Walter Sargent & Co., Mosely Lot 1	50	....
Barrett & Leeper, J. Hemminger 1	75	....
Clark Snyder, Owen & Maddox 1	50	....
Sunflower O. & G. Co., Allen Kidd 1	90	....
Lion Oil Co., Jack Kalesinger 1	50	....
OHIO COUNTY—		
Kentucky Natural Gas Co., L. C. Powers 12	25	....
Joseph Mayer, Martha Medcalf 16	20	....
Cumberland Petroleum Co., Rolla Richards 32	25	....
Hupp & Jenkins, John Bell 1	10	....
INDIANA		
DAVIESS COUNTY—		
Consumers National Oil Co., William E. Gough 1	*	600
Oliphant & Sage, Eva Fuhrman 1	*	....
DECATUR COUNTY—		
Oliver & Grace Smith, John Roinsel 1	*	750
PIKE COUNTY—		
Murphy Oil Co., Stewart Bros. 3	10	....
United Oil Co., Elizabeth Atkinson 9	5	1011
OHIO COUNTY—		
Cumberland Petroleum Co., Rolla Richards 32	25	....
Ky. Nat. Gas Co., L. C. Powers 12	25	....
Joseph B. Mayer, Martha Medcalf 16	20	....
Henry Scholl, J. R. Mosley 4	*	....
McLEAN COUNTY—		
Ohio Oil Co., G. B. McManana 10	100	....
Sunflower O. & G., Allen Kidd 90	..	....



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HOUSTON, TEXAS

THE OIL WEEKLY REPORT ON IMPORTANT *Wildcat Tests*

ALABAMA

HOUSTON COUNTY — Rice O&G Co.'s Oakley Est. 2, se nw sw 9-3n-29e, sd heavier rig td 4002 ft.

MOBILE COUNTY—J. C. Prine's King 1, 4-1n-4w, pb to 2600 ft, sd, old td 3086 ft. Bayou O&G Co.'s J. A. Stafford 1, sw sw 24-7s-3w, lcn.

ARKANSAS

BRADLEY COUNTY—Phillips Pet. Co.'s & Joe Modisett's Brown 1, ne nw 28-16-12, woc 10-in csg 850 ft.

CALHOUN COUNTY—I. P. B. Oil Corp.'s Henisberger 1, sw se 9-11-13, elev 207 ft woc 110 ft.

COLUMBIA COUNTY — Burford & Co.'s Kendrick 1, nw se 8-19n-18w, dr 4250 ft shale. J. C. Buckbee, Tr's Cumbie 1, 17-17-18, cored sand and shale 3060-82 ft sd 3175 ft.

CLARK COUNTY—J. G. Wooten's Sparkman 1, 1-11-20, spd and sd.

CLEVELAND COUNTY—Diffie et al's L. C. Ross 1, sw ne 1-11-11, woc 100 ft. R. L. Saxon's L. C. Tipton 1, sw ne 13-11-12, elev 207.4 ft rur. J. R. Lockhart's I. Robertson 1, se se 36-10-11, dk and mir.

DALLAS COUNTY—Walter Lown's Atkinson 1, ne nw se 7-10-13, woc surf csg.

HEMPSTEAD COUNTY—Buffalo Oil Co.'s A. J. Lafferty 2, se nw 17-14-24, tested flow water, sd 2470 ft. H. D. Easton et al's Conway-Tiller 2, sw sw 34-12-27, elev 251 ft sd 3005 ft, high water. Imperial O&G Products Co.'s Foster 1, nw sw 35-12-26, top massive anhydrite 2012 ft dr 2642 ft fossiliferous shale. Stewart Oil Co.'s Fee 1, se ne se 31-12-23, dr 1634 ft sandy shale and pyrites. Louis Hays' State 2, swc 18-14-25, ru and sd high water.

LITTLE RIVER COUNTY—M. E. Sanderson's Penning 1, ne ne sw 6-13-30, sd 168 ft. Joe Strahan's Dierks Lbr. Co. 1, 21-12-28, rur.

LONOKE COUNTY—J. F. Russell's Gunter 1, se se 17-5-10, dk. Fred Silver's Jos. Chambers Est. 1, sw ne nw 17-2-7, woc td 1624 ft.

MILLER COUNTY—Erwin & Leach's Red River Farms 1, 2-17-26, 10-in cemtd 445 ft, sd. Joiner et al's Montana Realty Co. 1, ne nw nw 3-17-28, top red beds 3505 ft, top massive anhydrite 4005 ft, so 4632-64 ft, cored sand claiming so 5536-54 ft arr test td 5554 ft. McClanahan et al's Miller Lbr. Co. 1, sw sw 2-18-28, elev 199 ft top Nacatosh 1632 ft. Saratoga chalk 1900-2300 ft. Annona chalk 2535-2773 ft. Blossom 2870-3207 ft. Woodbine 3510-3595 ft. Georgetown 3651-3975 ft, top anhydrite 5382 ft, coring 6155 ft. C. V. Lenz' Dale 7, 24-15-26, dr 3800 ft.

NEVADA COUNTY—Benedum & Trees Oil Co.'s Groves 1, sw sw 10-14-20, tested est 20-25 mil ft gas 1225-85 ft dry 1960-89 ft tested 800 ft oil in 25 minutes in drill stem test 2248-78 ft, sd adding to block Steel & Warmack's Wm. Haynie 1, se se nw 6-14-21, spd & sd. L. M. Glasco's Richie 1, 2, 3 & 4, nw se 10-14-20 lcns.

OUACHITA COUNTY — J. M. Farris' G. Dean 1, 16-15-17, owdd 2997 ft.

POPE COUNTY—Ark. La. Gas Co.'s L. C. Smith 1, sw sw se 10-8n-21w, dr 1200 ft.

UNION COUNTY—Don Keever's (formerly Mrs. Mamie McCurry et al) Slaughter 1, se se 9-17-16, sr 4518 ft.

CALIFORNIA

FRESNO COUNTY

CANTUA CREEK — Mohawk Pet. Co.'s Langer 1, 30-16-15, rur. Western Gulf's S. P. Land Co. 1, 3-17-15, td 8531 ft, blank liner run to 8529 ft, perforated 8430 to 8529 ft, swabbed some light oil.

KERN COUNTY

LERDO—Arkelo Pet. Co.'s No. 1, 23-28-26, dr sandy shale 3624 ft.

LOST HILLS—Associated's No. G-L-3, 2-26-20, rur; No. 12-A-3, 11-26-20, dr loose medium gray sand 1136 ft; Taylor 1, 1-26-20, dr dark gray shale 5074 ft. Lnicoln Pet. Co.'s No. 1, 12-26-20, cored oil sand 1617 to 1627 ft to dr deeper. Standard's United 1, 2-26-20, td 6887 ft, plug 3606 ft, shot 9⅝ in at 3600 ft. Texas Co.'s Theta 1, 11-26-20, dr sand and shale 1771 ft.

GRAPEVINE—Associated's Tejon 1, 17-11-19, sd 3160 ft. 101 Oil Co.'s Tejon 1, 5-10-19, idle dk. Reserve Oil & Gas Co.'s Ritchie 33-2, 33-11-19, td 4505 ft, flowed on compressor 15 bbls an hour for 3 hours, sanded up. May dr deeper; Tejon 33-1, 33-11-19, td 6030 ft, plug 4805 ft, tester indicated 3 oil zones from 4712 to 5225 ft, to dr about 50 ft and test.

RIO BRAVO—Associated's K.C.L. 1, 30-29-25, dr sandy shale 6181 ft.

MOUNTAIN VIEW—Associated's Di Giorgio 2, 3-31-29, dr gray sand 5501 ft. Mohawk Pet. Co.'s Earl Fruit 2, 10-31-29, dr 5648 ft. Shell's Greer 1, 15-31-29, dr sand and clay 6004 ft.

SAN EMIDIO—I. L. Burch's No. 1, 3-10-23, dr shale 703 ft. Texas Co.'s K.C.L. C-11-49, 11-11-22, dr shale 9641 ft.

DEVIL'S DEN—Den Pet. Co.'s Bates 1, 20-25-19, td 1287 ft, bailed dry, plug 750 ft to test upper showings.

JASMINE—Doyle Pet. Corp.'s Quinn 1, 15-25-27, td 2892 ft, pulled liner to deepen. Hall-Baker Co.'s Quinn 1, 20-25-27, (core hole), dr shale 1510 ft.

EAST EDISON—East Edison Oil Co.'s Tejon 1, 21-30-30, td 930 ft, plug 760 ft, to redr.

ELK HILLS—Elk Hills Pet. Corp.'s No. 1, 14-30-24, sd 5935 ft.

ARVIN—General Pet. Corp.'s Arvin 1, 26-31-29, dr sand and shale 6760 ft.

KERN FRONT—Alvah M. Kaime's Sesnon 1, 17-28-27, dr shale 578 ft.

BUENA VISTA—Ohio Oil Co.'s K.C.L. B-1, 4-32-26, td 1200 ft, wocs 10 in on bottom; Title Ins. & Trust D-1, dr shale 2757 ft.

NO. BELRIDGE—Rio Grande Oil Co.'s Layman 1, 18-28-20, dr shale and sand 2520 ft. Shell Oil Co.'s Voigt 1, 5-28-20, dr gray sand 4162 ft.

TEN SECTION—Standard's K. C. 11-1, 19-29-26, dr sand and shale 5635 ft. Superior Oil Co.'s K.C.L. 8, 11-30-26, foundation.

SO. BELRIDGE—Temblor Range Oil Co.'s No. 1, 24-28-20, sd.

MISCELLANEOUS

ALAMEDA COUNTY—Seaboard Oil Co.'s Johnson 1, 13-3-3, dr shale and sand 4137 ft.

HUMBOLDT COUNTY—Texas Co.'s Eureka 2, 22-3-1, td 4428 ft, redr at 3231 ft.

KING'S COUNTY—Associated's Avenal 1, 35-23-17, dr gray sand 2942 ft. J. P. Herndall & Associateds' Spreckles 1, 16-24-18, td 4201 ft, plug 1985 ft, co. Milheim Oil Corp.'s Resources 1, 20-22-22, td 5810 ft, fsh.

SAN BENITO COUNTY—Associated's Murphy Ranch 1, 5-12-4, dr hard sandy shale 4290 ft.

SOLANO COUNTY—Amerada Pet. Corp.'s Hoppe 1, 22-4-2, dr sand and shale 6755 ft. Standard's Niel Anderson 1, 27-4-2, td 4778 ft. running formation tester. Northern Counties Pet. Co.'s Ewers-Mooney 1, 25-24-3, sd 8260 ft, to drop from report. J. W. Alford's Williams 1, 28-16-23, rur.

MONTEREY COUNTY—Shell's Branch 1, 34-24-10, sd 8994 ft, to drop from report; ranch 2, dr shale 2453 ft.

SAN LUIS OBISPO COUNTY

CARRIZO PLAINS — Barnsdall-Foster Oil Co.'s Wreden 1, 24-28-17, sd 5083 ft, to drop from report, Birch-Royer Oil Co.'s Patchett 1, 33-31-13, td 2357 ft, abn.

CHOLAME—Cholame Synd.'s Jack 2, 10-25-15, td 3648 ft, trying to locate water.

ARROYO GRANDE—A. T. Jergins Trust's Roderiguez 1, 5-32-13, td 3654 ft, abn; Roderiguez 2, foundation, abn, will not dr. R. W. McBurney's No. 1, 23-32-22, wocs 12½ in at 110 ft. Pismo Pet. Co.'s Scott 1, 5-32-13, rig.

HUASNA—Union's Porter 1, 32-32-15, dr brown shale 1238 ft.

PANORAMA HILLS—United Foreign Oil Co.s No. 1, 2-32-21, dr gray shale 1850 ft.

SANTA BARBARA COUNTY

COAL OIL POINT—Bankline Oil Co.'s No. 2, permit 191, td 4708 ft, redr to 4200 ft, sd to drop from report.

LOMPOC—O. C. Field's Santa Rita 1, 11-7-33, sd 2064 ft. Top Row Oil Co.'s Spanne 1, 6-35, dr hard shale 1060 ft.

BETTERAVIA—E. H. Moore's Union Sugar A-1, 25-10-35, dr Sisquoc shale and sand 7018 ft.

GATO RIDGE—Petrol Corp.'s Tognazzini 1, 9-8-32, grading.

CASMALIA—Todos Santos Oil Co.'s No. 1, 29-9-34, dr shale 2164 ft.

VENTURA COUNTY

PIRU—Associated's Wiley Canyon 1, 6-3-11, grading.

SOUTH MOUNTAIN—Calco Pet. Corp.'s No. 4, 17-3-20, lcn. Geo. L. Duty's No. 1, 13-3-21, sd 183 ft. Honolulu Oil Corp.'s Hobson 1, 23-3-21, dr gray sand 4455 ft.

BARDSDALE—El Rancho Oil Co.'s Elkins 1, 9-3-19, td 5107 ft, plug 4990 ft, wocs. Layning & Jacobs' No. 1, sd 1275 ft.

SHIELLS CANYON—Texas Co.'s No. 131, 4-3-19, dr sand and shale 3527 ft.

OXNARD — Vaca Explor. Co.'s Calif. Lands 1, 6-1-21, sd 2830 ft.

VENTURA—Ventura Explor. Co.'s Sexton 1, 30-3-22, td 9525 ft, set blank liner, perforated by stages 9000 to 9400 ft, swabbing, dr water.

SOUTHERN CALIFORNIA

NEWHALL—Barnsdall's Rancho S. F. 1, 26-4-17, dr shale, streaks sand showing gas 3520 ft. Holbrook Pet. Co.'s Newhall L&F Co. 1, 28-4-16, td 3890 ft, co. Yant Pet. Co.'s Yant 5, 1-3-16, sd 2734 ft.

ARTESIA—M. T. Bernstein's Millard 1, 25-3-12, td 6020 ft, plug 3900 ft, to test upper showings.

COVINA—Charter Oak Oil Co.'s Bright 1, 7-1-9, spud 9/28, dr.

NO. LONG BEACH — Geo. L. Clayton's Clayton 1, 32-3-12, rig.

GARDENA—Crude Oil Dr. Co.'s No. 1, 31-3-13, dr shale streaks shell 5360 ft. Standard's Bodger 1, 22-3-14, bldg rig. Universal Cons. Oil Co.'s Carrel 1, 36-3-14, bldg rig. West American Oil Co.'s Dominguez Estates 1, 5-4-13, dr sand and shale 6120 ft.

EL NIDO—K. L. Lystle's McKenna 1, 33-3-14, td 7352 ft, co.

TORRANCE—Oliver McDowell's No. 1, 35-3-14, dr shale 7190 ft.

PALOS VERDES — Pamaco Royalty Co.'s Burkhard 1, 2-5-14, rigged up, idle, to drop from report.

ASCOT SPEEDWAY—Republic Prod. Co.'s Jordan 1, 24-1-13, rig.

ROSECRANS—Republic Prod. Co.'s Trust 1, 18-3-13, td 6141 ft, to land perforated liner at about 5935 ft.

LAWNDALE—Signal Finance Co.'s Woods 1, 10-3-14, dr shale streaks sandy shale 9277 ft.

FOX HILLS—Superior Oil Co.'s Inglewood Ext. 1, 25-2-15, dr shale and sand 4733 ft.

EAST SANTA FE SPRINGS—Vanda Pet. Corp.'s Loftus Land 1, 4-3-11, td 7958 ft, r to 7700 ft, plan to run formation tester.

ORANGE COUNTY—Calif. Eastern Oil Co.'s

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million feet of gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
b.s.—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so & g—*show oil and gas.*
fsg.—*fishing.*	spd—*spudding.*
ft—*feet.*	sr—*straight reaming.*
hfw—*hole full of water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

Verde 1, 31-3-9, td 4750 ft, fsh. Shell's Anaheim Sugar 3-1, 7-6-10, sd 3518 ft, to drop from report. West Coast Ref. Co.'s Yorba 1, 25-3-9, dr shale streaks hard sand 690 ft.

SAN BERNARDINO COUNTY—Chino Pet. Co.'s Abacherli 2, 12-3-8, td 2235 ft, pumping 65 bbls by heads 24 gravity oil, cut 2 percent. May work over. Equitable Pet. Explor. Co.'s No. 1, 11-10-5 (near Barstow), dr hard brown shale 2853 ft.

COLORADO

BOULDER COUNTY — Boulder Producing & Drilling Co.'s Maxwell 2, sw sw ne 24-1n-71w, dr 2070 ft. Baker et al's Lee 1, sw ne ne 9-1n-70w, completed for 3 bbls oil in shale at 1600 ft.

LARRIMER COUNTY — Continental Oil Co.'s Buckeye U. P. 8, cne sw 31-10n-68w, coring. Cored Lakota sand at 4512-18 ft, td 4518 ft.

MOFFAT COUNTY—Continental Oil Co.'s Henderson 1, sw sw 16-3n-91w, preparing to swab at 2605 ft.

PARK COUNTY — South Park Oil Co.'s State 1, se se sw 16-11s-75e, dr 5080 ft and carrying 4¾ in csg. Company's LeBert 1, ne ne se 34-11s-75w, sd 705 ft. Lemarr 1, ne ne se 34-11s-75w, dr 1310 ft.

WELD COUNTY — Continental Oil Co.'s Briggs 2, ne sw 13-6n-61w, waiting for engine parts at 6242 ft.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, dr 5275 ft.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Bank of Hilliard 1, nw se 19-4n-24e, elev 110 ft, dr below 706 ft (with CT), depth not given.

POLK COUNTY—Edw. A. Hill's Polk Co. Lbr. Co. 1, nw nw ne 32-25s-25e, elev 90 ft, dk.

KANSAS

BARBER COUNTY—Sinclair Prairie Oil Co.'s Gentry 1, ne ne ne 1-33s-15w, testing.

BARTON COUNTY—Brouk et al's Keil 1, se se ne 11-16s-15w, testing. Rose & Lants' Redetzke 1, ne nw nw 10-16s-11w, ur 5-in csg 3294 ft. Yernell & Carlson's Rath 1, ne ne ne 35-18s-12w, dr 2605 ft. C. L. Price's Deutsch 1, nw nw ne 16-16s-13w, dr 2385 ft. F. E. Bailey et al's Hammeke 1, nw ne sw 12-18s-12w, sd 315 ft. Missouri Valley O&G Co.'s Peach 1, se se se 24-16s-14w, mim. Freehorn et al's Sooy 1, nw nw ne 27-18s-12w, cel.

BUTLER COUNTY — Simpson Oil Co.'s Deblem 1, sw sw sw 11-26s-6e, ru to spd. Hutchinson O&G Co.'s Westfall 1-A, se sw se 13-27s-3w, dr 595 ft.

CHASE COUNTY—Propp et al's Fromm 1, se se se 29-18s-9e, sd 2010 ft.

CLARK COUNTY — Olson & Watchorn's Morrison 1, cse sw 17-32s-21w, dr 5780 ft.

COWLEY COUNTY—Home Natural & McNish's Werner 2, 31-32s-6e, dr 278 ft.

DECATUR COUNTY—Winkler & Koch's Vessey 1, cnw se 26-3s-26w, rur.

EDWARDS COUNTY—Stanolind and Ellwell's Donovan 1, cse se 14-25s-18w, skid rig. Royal Pet. Corp. et al's Krupp 1, nw nw se 18-24s-19w, rig.

ELLIS COUNTY — Jones & Shelbourne's Gunther 1, se se sw 9-11s-19w, ur 6-in csg 3646 ft. Bradley Oil et al's Penny Wann 1, se se se 13-15s-20w, 600 ft oih. Empire's Samuelson 1, ne ne sw 31-11s-16w, ur 5-in csg 3580 ft. Bridgeport Mach.'s Ubert 1, ne ne nw 12-13s-18w, sdo 3707 ft. Trigg et al's Armbrister 1, se se sw 6-11s-19w, dr 2975 ft. Lario O&G Co.'s Cress 1, ne ne ne 13-11s-17w, sd 346 ft. Lario's Marshall 1, nw se ne 36-11s-18w, dr 2245 ft. Champlin et al's Hadley 1, se sw ne 30-11s-17w, ur, 3487 ft, td. Frank Hamilton et al's Sack 1, nw nw se 26-13s-19w, dr 3600 ft. Ted Kerr et al's Koblitz 1, se sw nw 23-12s-18w, ur 12-in csg 1418 ft. Wolf Creek et al's Polifka 1, sw sw ne 24-13s-18w, dr 3262 ft. Glick & McMorrow's Staah 1, sw sw se 6-13s-17w, dr 3345 ft. Simar Oil Co.'s Leiker 1, nw nw se 12-15s-18w, dr 2980 ft. Taylor et al's Emery 1, ne ne ne 23-14s-18w, sd 793 ft. Winkler & Koch's Jensen 1, sw sw ne 3-13s-18w, rig. Brouk et al's Jacobs 1, nw nw se 31-15s-16w, dr 385 ft. Bridgeport Mach.'s Madden Est. 1, ne nw nw 26-15s-18w, co 3435 ft.

GRAHAM COUNTY—Nook & Young's Hills 1, nw se se 19-10s-21w, dr 1960 ft. Sam Murphy & Alcorn's Wamoff 1, cnw nw 27-10s-22w, run surf pipe 80 ft.

GRANT COUNTY — Columbian Fuel Co.'s Gray 1, cse 3-29s-35w, td 2808 ft, shooting.

KEARNEY COUNTY—J. L. Murphy et al's Campbell 1, nw nw sw 32-25s-35w, spd & sd.

KINGMAN COUNTY — McBride's Wooldridge 1-A, sw ne se 16-27s-4w, sdo 3898 ft.

LINCOLN COUNTY—Graham et al's Smiley 1, ne nw nw 26-10s-9w, rur.

MARION COUNTY — Empire Oil Co.'s Schmidt 1, nw nw se 31-20s-2e, td 3186 ft, D & A. Western Kansas O&Ref Co.'s Hauser 1, sw sw sw 19-19s-4e, mim.

McPHERSON COUNTY — Skiles et al's Nuse 1, ne ne sw 18-18s-4w, cel.

NESS COUNTY—Newton Dev. Co.'s Tenny 1, nw nw se 19-18s-25w, set 10-in csg 1640 ft. Sayre Oil Co.'s Ryersee 1, cne se 34-18s-21w, dr 4050 ft.

PRATT COUNTY—H. V. Elwell et al's Fay 1, nw nw se 15-27s-14w, dr 4295 ft. I. T. I. O. and Olson's Bolt 1, cnw ne 5-29s-11w, dr 2984 ft.

RENO COUNTY—Miller et al's Detter 1, ne se nw 28-22s-7w, sd 2849 ft. Pryor & Lockhart's Kerr 1, cnw 22-23s-8w, set 6⅝-in csg 3593 ft. Foraker et al's Hiett 1, se sw ne 34-24s-4w, sd. Clyde Pulse et al's Payne 1, sw nw ne 4-22s-7w, mim. L. R. Page et al's Mueller 1, cs½ sw ne 25-24s-5w, dr 3739 ft. Fred Rust et al's Schmucker 1, se se sw 29-22s-8w, cor. Fred Phillips et al's Ray 1, sw sw sw 7-23s-8w, sso & g. Maxwell O&G Co.'s Clayton 1, se se nw 23-25s-7w, loc.

RICE COUNTY—Allison & Fitzwilliams et al's Foby 1, nw sw nw 17-19s-7w, td 2270 ft, sd. Jon Stark et al's Doran 1, ne ne ne 29-20s-8w, 2200 ft oih, acidizing. Buckley's Bailey 1, sw sw nw 19-20s-6w, rig. Charles Pet Corp.'s Speck 1, nw nw se 29-20s-8w, co pits, td 1863 ft. Sage et al's Patton 1, sw sw sw 5-21s-7w, hfo 3337 ft.

ROOKS COUNTY—Lester & Dean's Burtt 1, se se ne 29-10s-2w, dr 1010 ft. L.C.D. Dlrg. Co.'s Westhusin 1, cne se 11-19s-17w, td 2690 ft, co. J. A. Shoemake's Stebbins 1, ne ne sw 26-7s-17w, pump 135 bbls oil and 115 bbls water, 15 hrs, to dd. Buckner & Schaff's McConnell 1, ne ne ne 34-6s-18w, rig. Empire's Ham 1, sw nw nw 24-8s-19w, mit.

RUSH COUNTY—Skeeles et al's Grumbein 1, sw sw ne 7-16s-20w, cel. Ralph Wixton et al's Gorham Est. 1, nw nw sw 35-15s-16w, set 10-in csg 2326 ft. C. L. Sheedy et al's Bison 1, sw sw sw 35-16s-17w, dr 1070 ft.

RUSSELL COUNTY — Hartman & Blair's Johnson 1, nw nw nw 11-13s-15w, woc. Coralena Oil Co.'s L. A. Sellens 1, nw nw nw 17-15s-13w, rust. Armer et al's Maier 1, ne ne nw 20-15s-14w, td 3317 ft, D & A. Equity Gas Co.'s Harbauk 1, nw ne se 19-13s-12w, ru. El Dorado Ref. Co.'s Scott 1, nw nw ne 17-13s-13w, sd 835 ft. Braden & McClure's Herbel 1, ne ne nw 35-14s-14w, no test. Winkler & Koch's McAllister 1, ne ne se 9-12s-13w, dr 2200 ft.

SALINE COUNTY—Ryan Consolidated & Archer's Norton 1, ne ne ne 30-14s-2w, recementing 6-in csg, no shut-off. James Brouk et al's Otherlander 1, ne nw se 10-16s-13w, ru.

SEDGWICK COUNTY—Lauck's McLean 1, csw se 1-27s-1w, pulled 5-in csg sr 6-in csg. R. J. Wallace et al's Sheer 1, sw sw sw 22-27s-3w, pb 3016 ft. woc.

SMITH COUNTY—Helmerich & Payne et al's Mayer 1, ne ne sw 10-5s-11w, spd.

STAFFORD COUNTY—I.T.I.O. Co.'s Mellies 1, cn½ n½ ne 6-22s-11w, fsg. Skelly's Kipp 1, se se ne 27-25s-14w, rust. C. E. Skiles et al's Leidigh 1, nw nw sw 21-22s-11w, dr 1350 ft.

SUMNER COUNTY—Matthews & Derrington's Berry 1, nw nw se 14-25s-1e, sd 3780 ft. The Texas Co.'s Reed 1, ne se se 11-31s-1w, dr 4027 ft. Pryor & Lockhart's McCowen 1, ne ne sw 18-32s-1w, dr 4184 ft. Rosespring's Rutter 1-A, cnw nw 21-33s-2e, spd. Rom Palmer et al's Hull 1, nw ne sw 9-32s-1w, td 3754 ft, D & A. C. L. Husted et al's Evers 1, se se ne 27-21s-2e, dr 400 ft. S. J. Buffington et al's Payne 1, csw ne 10-35s-2e, sd, running 5-in csg. W. C. McBride & Olson's Kinlund 1, ne nw ne 24-34s-1e, dig pits. Empire's Hoffman 1, nw nw sw 27-34s-1e, rog.

TREGO COUNTY—Hall et al's Deines 1, se se se 12-13s-24w, fsg 4500 ft. G. M. Pigott et al's Burkett 1, csw 15-11s-22w, td 3613 ft, sd. McNeely et al's John Lemke 1, nw nw sw 7-11s-22w, woc. York State Oil Corp.'s Gugler 1, sw sw sw 36-12s-21w, dr cement 3193 ft.

WOODSON COUNTY—Holmes et al's Holman 1, se ne ne 25-25s-14e, dr 615 ft. Ladd et al's Lauber 1, nw nw nw 4-26s-14e, dr 835 ft.

SOUTH LOUISIANA

ACADIA PARISH—H. E. Dalton's Setting 1, Trilby prospect, 17-9s-1w, sd 3200 ft.

ALLEN PARISH — Humble's Bel 3, Bel prospect, 28-6s-7w, dr shale 1948 ft.

CALCASIEU PARISH — General Crude's Buhler 1, Buhler prospect, 30-8s-9w, running an electrical logging device 7257 ft. W. Lahey et al's Bass 1, Nibletts Bluff, 9-10s-12w, mim. J. Elmer Thomas' Farmer Land Co. 1, sw of Manchester, 20-10s-7w, dr shale 650 ft.

CAMERON PARISH — Magnolia's Johnson Bayou School Land 1, Johnson Bayou prospect, 16-15s-14w, dr hard sand 3876 ft; same operator's Raymond LeBleau 1, Big Lake, 13-12s-8w, dr shale 1308 ft. Pure's State Mallard Bay 1, Mallard Bay prospect, 22-13s-3w, dr shale 3250 ft.

EAST BATON ROUGE PARISH—Cavalier Oil Co.'s Vignes 1, ne of Hope Villa, 40-8s-2e, fsh 5653 ft.

IBERIA PARISH—The Texas Co.'s State Fausse Point 1, Fausse Point, 35-11s-8e, dr shale 6023 ft; same operator's State Vermilion Bay 1, in Vermilion Bay, 16s-15e, dr shale 8619 ft.

IBERVILLE PARISH—Humble's Wilbert 1, Bayou Blue, 67-9s-11e, dr clay 20 ft.

JEFFERSON DAVIS PARISH — Shell's Sturdevant 1, South Roanoke prospect, 25-10s-

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4w, running an electrical logging device 8481 ft. Stanolind's Calcasieu National Bank 1, South Jennings prospect, 15-10s-3w, fsh 9944 ft.

ST. MARTIN PARISH—Texas Co.'s Lake Mongouloi 2, Lake Moungouloi prospect, 14-10s-9e, fsh 8909 ft.

ST. MARY PARISH—Mike Hogg's Bayou Teche 1, Charenton field, 5-13s-9e, dr shale 1600 ft. The Texas Co.'s Bayou Sale 1, Wax Lake prospect, 40-17s-9e, dr shale 5508 ft.

TERREBONNE PARISH—Humble's Ellender 1, Houma gas field, 23-19s-19e, dr shale 2804 ft.

VERMILION PARISH—Continental's Hebert 1, Abbeville prospect, 20-12s-3e, fsh 11,732 ft. Stanolind's Fred Stovall 1, South Abbeville or Intercoastal prospect, 89-14s-3e, mim.

WEST FELICIANA PARISH—R. L. Morris et al's Clack 1, nw of St. Francisville, 103-1s-4w, woc 383 ft.

NORTH LOUISIANA

BIENVILLE PARISH—Bowles et al's Bank of Ringgold 1, ne ne 3-15n-9w, top first anhydrite 3215 ft, tested mud and sw 4995-5000 ft, dry abn td 5239 ft. DeSoto O&G Co.'s Dunn & Olsen 1, n½ nw 15-16n-10w, sd 2800 ft. J. W. Leonard's Courtney 1, se se 5-17n-7w, elev 215 ft, top first anhydrite 4858 ft, top massive anhydrite 5096 ft, top Travis Peak 7015 ft, mov in csg td 7313 ft. McDowell et al's Locke 1, ne nw ne 9-15n-9w, elev 180 ft dr 225 ft.

BOSSIER PARISH—Humphrey et al's Bulkley 2, 35-21n-13w, dr 2300 ft. United Gas Pub. Serv. Co.'s Skannal F-1, 26-17n-12w, dr 5180 ft. Roos 1, 23-17n-12w, dr 3290 ft.

CADDO PARISH—Prairie River Synd's Hutchinson 1, sw sw 15-15n-12w, elev 152 ft, top Travis Peak 5845 ft, dr 6918 ft sand and shale. J. B. Hutchinson's Storey-Phillips 2, 28-16n-13w, dr 2070 ft. Gulf's Hatcher 1, 11-17n-15w, dr 6048 ft shale.

CLAIBORNE PARISH—E. T. Oakes' Patton Est 2, ne ne 1-20n-5w, elev 357 ft, cored 5066-76 ft shale and lime, lower 8-in so, arr core td 5076 ft. Sugar Creek Synd's Darrett 2, se sw 31-20n-5w, fsh, td 8616 ft. United's Taylor 1, 1-19n-5w, dr 2957 ft lime and shale.

DESOTO PARISH—Sundby et al's (formerly J. E. Carlson et al), Garland 1, se nw 7-14n-14w, arr deepen 2165 ft. Payne et al's Harris 1, 11-13n-14w, fsh td 2200 ft. Kamon et al's Rascoe 1, se nw 14-13n-13w, 10-in csg 61 ft sg in Nacatosh 1092-1124 ft, did not test dr 1575 ft shale. Armstrong et al's Fee 1, 3-10n-13w, mim. Tarver et al's A. D. Johns 1, 20-16n-14w, woc 306 ft.

FRANKLIN PARISH—S. C. Jensen's Bailey 1, c se nw 12-11n-6e, dr 2130 ft shale.

MOREHOUSE PARISH—Henry E. Rondeau et al's E. M. Clarke 1, ne se 10-20n-7e, top red beds 2874 ft sd 3781 ft. Farrell & Jones' D. H. Harp 1, se se 12-22n-7e, rur.

NATCHITOCHES PARISH—Natchitoches Oil Co.'s J. S. Simpson 1, 12-7n-7w, sd 50 ft. C. D. Morrison's Moffett 1, se se 19-10n-10w, sd 220 ft. Union Pet. Co.'s DeBlieux 2, 83-10n-7w, top chalk 2544 ft top Blossom 3252 ft sd 3372 ft.

RED RIVER PARISH—Hunter et al's (formerly Connelly et al), Long-Bell Lbr. Co. 1, ne ne 19-13n-9w, dr 3425 ft lime.

RICHLAND PARISH—Gulf's R. R. Rhymes 15, nw se ne 32-17n-6e, elev 77 ft, top anhydrite 2936 ft, base red beds 6380 ft, dr 7505 ft shale.

SABINE PARISH—Whitehurst et al's Whitney Corp. 1, c nw ne 8-9n-13w, gas flow killed, arr set 7-in csg td 5503 ft. A. H. Tarver's Baker 3, ne nw 36-8n-12w, dr 5240 ft lime and shale.

UNION PARISH—Federal Pet. Co.'s Series B U 3014, 34-21n-3e, blew out making gas and sw, killed pb to 2100 ft level to complete as gasser.

WEBSTER PARISH—W. D. Ambrose's Crichton 1, sw nw 36-18n-9w, elev 257 ft massive anhydrite 5008-5300 ft, making est 40 to 60 mil ft gas, si for gauge, td 5860 ft. Ohio Oil Co.'s Bodcaw Lbr. Co. 1, c ne se 28-21n-10w, dr 5112 ft. R. M. Coyle 1, c ne se 22-21n-10w, dr 3963 ft. United's Nixon 1, 22-21n-10w, dr 4600 ft. C. V. Davis 2, c nw nw 23-21n-10w, rur. Magnolia's Cox 1, 23-21n-10w, dr 3348 ft. R. W. Norton's Fee 1, 27-21n-10w, mim. Woodley Pet. Co.'s C. G. Gray 1, ne ne 27-21n-10w, dr 4110 ft. R. R. Cox 1, sw sw 23-21n-10w, dr 1000 ft. L. C. Cox 1, 28-21n-10w, rur.

MICHIGAN

ALPENA COUNTY—C. W. Teater's Nevins 1, 18-32n-6e, sd 5440 ft.

ARENAC COUNTY — Tamblyn & Martindale's Buffalo Land 1, 7-19n-3e, sd 2700 ft. T. F. Caldwell, Inc.'s Mutch 1, 17-19n-4e, pb to 1600 ft from 2972 ft, sd. McClanahan Oil Co.'s Mee 1, 11-20n-4e, dr 560 ft; Seignious 1, 3-20n-4e, dr 1260 ft.

CLINTON COUNTY—St. Louis Pipe & Supply Co.'s Harris 1, 14-7n-2w, dr 1200 ft. Petroleum Exploration Co.'s Schneeberger 1, 11-5n-2w, rig. Stork Oil Co.'s Parker 1, sw sw ne, 25-7n-1w, loc.

GLADWIN COUNTY—Olympia Oil & Gas Co.'s Barnes 1, 22-20n-1w, Dundee 3618 ft, dr 3699 ft. D. F. Jone's Doane 1, 33-18n-1e, sd 1020 ft. Muskegon Oil & Gas Co.'s Wineman 1, 33-18n-1e, rig.

GRATIOT COUNTY—Red Man Oil Co.'s Duckworth 1, 9-11n-3w, sd 800 ft. Ed. Swearer's Alexander 1, 8-12n-2w, sd 810 ft. H. L. McEvoy's Palmeter 1, 18-9n-1w, loc. Chas. Anderson's Askergrad 1, 9-9n-1w, loc. Max Pray's Wittig 1, 23-11n-1w, so 3183 ft, sd. Ithaca Exploration Co.'s Hart 1, 10-10n-3w, sd 1250 ft. Herb Snell's Smead 1, 20-11n-4w, dr 1350 ft. John Pentowoski's Sharrar 1, 23-11n-4w, fsg 1020 ft.

HILLSDALE COUNTY—Jacob Beck's Fee 1, 16-nw nw se, dr 700 ft.

IOSCO COUNTY—J. H. Barton's Goupil 1, 9-21n-5e, Berea 1260 ft, dr 1500 ft.

ISABELLA COUNTY — Shell Petroleum Co.'s Fritz 1, 13-14n-6w, owdd, ru 1385 ft. Pure Oil Co.'s Embrey 1, 34-15n-6w, dr 1600 ft. Mountain Oil & Gas Co.'s Thompson 1, 17-15n-6w, dr 1100 ft. McClanahan Oil Co.'s Cook 1, 15-16n-5w, dr 1050 ft.

MACKINAC COUNTY—Charles Van Kuren's Hiawatha Club 1, 17-44n-9w, sd 1158 ft, so.

MISSAUKEE COUNTY — M. J. Ingold's Donley 1, 31-22n-8w, dr 1300 ft.

OSCEOLA COUNTY—M. B. Keeler's Beall 1, 24-18n-9w, fsg 1007 ft. Dibble Brother's Townsend 1, se ne 4-20n-17w, br.

SAGINAW COUNTY — Hume Oil Co.'s Schwigner 1, nw ne sw 5-11n-6e, sp. Jaenickie Oil Co.'s Moulton 1, 31-12n-2e, rig. Monitor Oil Co.'s Turnwald 1, se se ne, 32-9n-4e, sp.

MISSISSIPPI

BOLIVAR COUNTY—White & Jones' Ballou 1, ne ne 18-24n-7w, arr test 1680 ft.

CLAIBORNE COUNTY—Claiborne County Dev. Co.'s Ruth Hayden 1, 56-11n-2e, lcn. Claiborne O&G Drlg. Co.'s Crawford 1, 6-13n-4e, elev 115 ft, dr 1702 ft, shale, sand and lime.

GRENADA COUNTY—H. T. Salter et al's Carpenter 1, nw se 5-21n-7e, repr dk.

HINDS COUNTY—Chichester et al's Gerwin 1, sw nw 12-5n-4w, spd, sd 20 ft.

KEMPER COUNTY—R. A. Keaton et al's Buckwalter Lbr. Co. 1, nec 6-10n-14e, dk.

LAMAR COUNTY—Sun Oil Co.'s Scanland & Semmes 1, c sw ne 28-4n-15w, woc 13-in surf csg. Snow Black Pet. Co.'s Miller et al 1, ne ne sw 3-4n-15w, owdd, td 1750 ft.

PERRY COUNTY—Fred E. Courson's Newman Lbr. Co. 1, nw nw 26-1n-9w, spd.

SIMPSON COUNTY—Goodwill O&G Co.'s Berry 1, 33-2n-4e, dk & rog.

SMITH COUNTY—Howie & Lewis' Broadfoot 1, 15-4n-7e, fsh, td 1965 ft, gummy shale.

WILKINSON COUNTY—T. S. Stoneman et al's L. T. Ventress 1, ne sw 38-2n-3w, woc 10¾-in csg 799 ft.

YALABOUSHA COUNTY—G. M. Langston et al's W. C. Bryant 1, ne sw 21-24n-6e, elev 276 ft, dk & mir.

MONTANA

BIG HORN COUNTY—E. A. Lammers & Son's Berthold 1, se se 6-1s-32e, dr 231 ft.

CARBON COUNTY—East Bridger Oil & Gas Co.'s 1, s se se 23-6s-23e, dr 689 ft. Round Butte Oil Co.'s 2, w ne se 23-6s-23e, dr 336 ft.

CASCADE COUNTY—C. Leonard Smith's Hines 1, se sw se 14-22n-2e, dr 291 ft.

FERGUS COUNTY—Emmons et al's 3, se ne ne 6-21n-18e, dr 716 ft. Judith Operating Co.'s Government 1, w nw ne 35-22n-17e, dr 3010 ft.

PETROLEUM COUNTY—H. Clark Rowland et al's Kalispell 1, se ne se 23-6s-23e, dr 405 ft.

PONDERA COUNTY—Kirk Oil Co.'s Kellog 1, se nw ne 31-28n-4w, moving in rig. Montana Power Gas Co.'s Berger 1, cne 31-31n-4w, dr 406 ft.

SHERIDAN COUNTY—Cheyenne Oil & Gas Co.'s Olson 1, ne ne 15-35n-53e, dr 1525 ft.

NEBRASKA

DAWES COUNTY — Stephens Petroleum Corporation's S. J. Palmer 1, northwest corner nw sw 1-33n-50w, preparing to run 8 in csg to 1794 ft.

GRANT COUNTY—Byrd-Frost, Inc., and Magnolia Petroleum Corporation's 1, 11-24n-38w, dr 1786 ft.

SIOUX COUNTY—J. M. Huber Corporation's Morgan 1, csw sw 32-35n-56w, running 10¾ csg to 1690 ft, and will carry.

SOUTH DAKOTA

FALL RIVER COUNTY—South Dakota Oil Co.'s 1-X, sw ne se 20-10n-4w, dr 3210 ft.

NEW MEXICO

LEA COUNTY—Argo Royalty Co.'s B. T. Lanehart 1, sw se ne 21-25s-37e, elev 3071 ft, making 10,000,000 ft gas, dr 3147 ft. Baldridge et al's Blakey 1, c nw ne 5-20s-38e, elev 3586 ft, sd 1654 ft. Brown and Reynolds' Parcell 1, c nw se 8-21s-38e, elev 3573 ft, dr 480 ft. Amon G. Carter et al's Elliott 1, c nw nw 22-22s-37e, lcn. C. & G. Oil Co.-The Texas Co.'s Ellen Weir 1, c ne ne 14-20s-37e, elev 3564 ft, top anhydrite 1348 ft, td 4074 ft. J. C. Clower et al's W. H. Turner 1, c se se 29-21s-37e, elev 3469 ft, dr 2460 ft. Barney Cockburn & Rowan-Nichols Oil Co.'s H. G. Mattern 1, c sw se 7-22s-37e, elev 3426 ft, td 3789 ft, sd to re-cem casing shoe. Conoco & California Co.'s E. M. Elliott 1-A-15, se se se 15-22s-37e, elev 3354 ft, dr 3350 ft; Elliott 1-A-21, c se se 21-22s-37e, elev 3338 ft, td 3559 ft, co and flows 100 bbls daily. Culberson, Erwin & Stovall's J. R. Stuart-Repollo 2, nw se se 10-25s-37e, elev 3108 ft, dr 1350 ft. Empire O&R Co.'s Anna Walden 1, c se nw 21-22s-37e, dr 130 ft. Emperor Oil Co.'s State 1, c sw sw 5-21s-35e, elev 3652 ft, dr 1650 ft. J. E. Farrell et al's Walden 1, c sw sw 15-22s-37e, elev 3385 ft, rig; Walden 1-A, c sw nw 15-22s-37e, mim. Gulf Oil Corp.'s L. M. Buffington 1, c nw sw 13-25s-37e, elev 3091 ft, pb fr 3903 ft to 3380 ft, then shot 200 qts nitro at 3188-3369 ft, testing. Harry W. Leonard et al's B. T. Lanehart 3, c ne nw 21-25s-37e, elev 3081 ft, pits. Joe C.Maxwell, R. Crandall & C. H. Osmond's State 1, c sw nw 32-10s-34e, mim. Magnolia's E. O. Carson 2, c nw nw 33-21s-37e, elev 3471 ft, testing 3633 ft; John Scharbauer-Eidson 1, c nw se 29-16s-35e, elev 4014 ft, dr gray lime 5144 ft. Ohio Oil Co.'s Anna Walden 1, c ne ne 21-22s-37e, elev 3364 ft, testing at 3636 ft. N. G. Penrose & Rowan-Nichols Oil Co.'s Will Cary-Humble 3, c se nw 22-22s-37e, elev 3364 ft, sd 1150 ft. Plains Prod. Co.'s J. A. E. Knight-Humble 2, c ne sw 14-24s-37e, lcn. Repollo Oil Co.'s York 1, se se ne 20-21s-37e, elev 3495 ft, rust; Jamison 1, sw se ne 21-24s-37e, elev 3227 ft, cem cas 110 ft; O. J. Boyd 2, nw nw nw 23-22s-37e, mim. Rushwold Oil Co.'s E. E. Carter 1, c nw ne 30-20s-39e, wildcat near Nadine, sp and sd. Samedan Oil Corp.'s S. B. Hughes 1, c ne sw 4-23s-37e, elev 3321 ft, shot 110 qts nitro 3517-3611 ft, swab 18 bbls oil 12 hrs; Hughes 2, c nw se 4-23s-37e, mim. Skelly Oil Co.'s Ellen Sims 1-A, c sw se 3-22s-37e, elev 3300 ft, testing 3622 ft; G. W. Sims 1, c ne nw 10-23s-37e, dr 280 ft; W. P. Sims 1, c ne ne 10-23s-37e, dr 350 ft; F. S. Stuart 1, c ne nw 15-25s-37e, elev 3107 ft, shot 130 qts nitro 3364-3416 ft, pb to 2230 ft, dr by junk at 2555 ft. Stanolind O&G Co.'s P. J. Langley 1, c se nw 15-25s-37e, elev 3109 ft, dr 3050 ft. W. H. Street et al's Wood-Humble 1, near c se ne 22-22s-37e, elev 3355 ft, dr 1165 ft. The Texas Co.'s Jas. F. Black 1, c sw ne 21-24s-37e, elev 3225 ft, crooked hole, td 755 ft; J. D. Young 1, se se se 5-24s-37e, elev 3277 ft, dr gray lime 2650 ft. Talbot and Mullineaux's Quincy-Ricker 1, c se se 7-16s-36e, sd 200 ft. Tide Water Oil Co.'s Coates 1-B, c nw nw 21-25s-37e, elev 3073 ft, dr 800 ft.

OKLAHOMA

ATOKA COUNTY—A. J. Sanders et al's Redden 3, se sw sw 19-1n-15w, dr 655 ft.

BECKHAM COUNTY — Mid-American Oil Co.'s Biscoe 1, sw sw sw 28-8n-22w, dr 890 ft.

CADDO COUNTY—Wasteka Oil Co.'s Griffin 1, sw se ne 27-6n-10w, pb 5400 ft, may abd.

CARTER COUNTY—The Texas Co.'s Cathey 1-B, se ne ne 6-5s-1e, woc. Hammond et al's Lile 1, sw se se 8-5s-1e, td 570 ft, sd.

CLEVELAND COUNTY—H. R. Hollenback et al's Stinson 1, nw nw ne 17-9n-2w, rig.

COAL COUNTY—Sinclair Prairie Oil Co.'s Culver 1, ne ne sw 16-1n-8e, cor. Continental's Kirby 1, sw se sw 23-1n-8e, dr 1610 ft. Continental's Breedlove 1, nw sw sw 24-1n-8e, cor. Carter's Warne 1, ne ne nw 31-3n-9e, dr 1600 ft. Shell Pet. Corp.'s Hill 4-A, cnw nw 30-3n-10e, spd. Continental's King 1, ne sw ne 26-1n-8e, fsg. Mitchell's Quiett 1, ne nw sw 35-1n-8e, sd. Continental's Daniels 1, sw ne sw 27-1n-9e, rur.

COMANCHE COUNTY — William Davis' Aetna Life Ins. Co. 1, se ne ne 22-2n-15w, sd 160 ft. L. D. Wise et al's Cones 1, se se sw 11-1n-10w, ru & sd.

COTTON COUNTY — Phillips Pet. Co.'s Warren 1, ne ne se 1-5s-13w, dr 2036 ft.

GARVIN COUNTY—Luttrell et al's Howell 1, nw se nw 34-1n-1e, sd. B. F. Lundy's G. C. Prince 1, ne ne se 32-1n-2w, dr 2592 ft. Ellison & Hammond et al's Silby 1, cnw nw 24-2n-3w, mit. Tide Water Oil Co. et al's Sturdevant 1, ne ne nw 28-4n-1e, dr 3880 ft, sd. Pure Oil Co.'s Isaac 1, se se se 6-2n-1e, rig corners.

GRADY COUNTY—Art Holt et al's Ramsey 1, ne se ne 31-5n-8w, der. Graham et al's Castleberry 1, sw se nw 8-5n-7w, td 1909 ft, D & A. Ray Stevens et al's Mays 1, ne ne ne 31-5n-8w, dr 5836 ft.

HARMON COUNTY—Lioalko Trust Ltd., Crasnoe 1, se se sw 14-3n-25w, td 2946 ft, lost circ.

HUGHES COUNTY—T. P. McAdams & Barnes Koch 1, sw ne ne 1-9n-10e, pb 2600 ft, woc. Southern Oil Co.'s Buck 1, se ne sw 21-

8n-10e, rust. Sivil et al's Montgomery 1, nw sw nw 7-9n-9e, dr 3530 ft. Geo. Orr et al's Morgan 1, ne se sw 6-7n-9e, loc abd.

JEFFERSON COUNTY — Red River Oil Co.'s Trout 1, se ne ne 6-8s-7w, td 2212 ft, sd. Pearson et al's Douthitt 1, ne ne ne 24-6s-9w, td 3670 ft, sd. Mid-Continent Pet. Corp.'s Reid 1, csw nw 32-6s-4w, rur.

KAY COUNTY—The Texas Co.'s Fulton 1, se se se 18-27n-4e, dr 3186 ft. Denver P&R's School 1, se nw ne 13-26n-1w, bailing, sso & g. Robert Wilson et al's Dickerson 1, ne ne sw 20-29n-1w, dr 3277 ft. Max Kelley et al's Johns 1, nw nw nw 35-27n-4e, dr 910 ft.

KIOWA COUNTY—Travis & Scott's Doyle 1, ne se sw 21-5n-17w, td 937 ft. Argus Pet. Co.'s Osbourne 1, nw nw ne 9-7n-16w, td 795 ft, sd. Rush C. Roberts et al's Funkhouser 1, se ne ne 25-7n-17w, dr 525 ft. Lykins et al's Aetna Life 1-A, se se se 8-5n-16w, td 530 ft, sd. Pendleton & Vaughn's Smart 1, se nw se 12-6n-17w, td 350 ft, sd. J. M. Young et al's Cooke 1, ne ne nw 33-2n-16w, mach.

LINCOLN COUNTY—Kemp and Continental's Lobaus 1, nw sw nw 21-17n-5e, rig. Skelly's Sporn 1, nw ne sw 21-17n-3e, rur.

LOGAN COUNTY—Sinclair Prairie's Stockton 1, se se sw 26-6s-2w, pb 8133 ft. Riddle et al's Johnson 1, csw se 20-8s-2w, td 4009 ft, to dd.

MARSHALL COUNTY — Helmerich & Payne's Taliaferro 1, nw se sw 26-5s-5e, dr 5880 ft.

McINTOSH COUNTY—Deickman's McIntosh 1, se se se 4-12n-17e, sd 1270 ft. Stanolind and Ramsey's Tiger 1, nw nw sw 13-9n-15e, spd.

MURRAY COUNTY — Hernsby & Jones' Sadler 1, ne ne nw 20-1n-2e, td 2674 ft. Power Oil Co.'s Lancaster Trust Co. 1, csw ne 10-1s-2e, dr 1710 ft.

OSAGE COUNTY—Chavalier & Simon's No. 1, se se se 24-23n-9e, ru.

PITTSBURG COUNTY — Oklahoma Dist. Co.'s Beeler 1, ne ne sw 7-7n-14e, dr cement. Pendleton & Vaughn's Hobbs 1, cse nw se 7-6n-16w, td 425 ft, sd. Burns & Moore's Block 1, cnw ne sw 31-6n-16w, td 50 ft, sd.

PONTOTOC COUNTY — Sands Pet. Co.'s Harvey 1, se se se 21-3n-5e, dr 282 ft. H. H. Diamond et al's Fee 1, se se se 30-5n-8e, loc.

SEMINOLE COUNTY—Rudco O&G Co.'s Butner 1-A, ne ne sw 15-9n-8e, sd 1950 ft. Kennedy et al's Bowlegs 1, nw nw se 3-8n-7e, loc. Amerada et al's Yarhola 1, ne nw nw 36-10n-7e, spd.

STEPHENS COUNTY—Ed Parson's Olson 1, csw sw 21-2n-8w, dr 1323 ft. The Texas Co.'s Bohanan 1, ne nw nw 15-3s-15w, mach. T. M. McCasland's Hildebrand 1, sw sw ne 1-3s-1w, sd 4601 ft. Coline Oil Co.'s Johnson 1, csw se nw 1-2n-8w, bldg der.

TEXAS COUNTY — Allison & Barnhill's Bingley 1, sw sw ne 30-2n-18ecm, ur pipe.

TILLMAN COUNTY—Bernheim's Tate 1, ne ne nw 16-1s-19w, td 3001 ft, sd. Beal & Toler's Magell 1, se se se 18-1n-16w, td 250 ft, sd. Eugene Skinner's Oliver 1, se se nw 22-1s-15w, td 1006 ft, rep mach. I.T.I.O. Co.'s Drumm 1, csw nw 32-2s-17w, loc.

EAST TEXAS

BOWIE COUNTY—Fay T. Chew and Brassett's Byron Barkinson 1 (90-ac), J. W. Parkham sur, 2½ mi n Leary, sp and sd. Ferguson and Hill's A. Y. Breckenridge 1, Nancy Dycas sur, 4 mi w Texarkana, sp and sd. Woodley and Bentley's J. D. Lumpkin 1 (245-ac), John McDermott sur, 1¼ sw mi Dalby Springs, elev 290 ft, Annona chalk 1665-2090 ft, sd 3665 ft.

CHEROKEE COUNTY—John G. Mayo et al's E. W. James-Pure 1 (50-ac), Jessie T. Jones sur, 4½ mi sw Rusk, elev 320 ft, top Pecan chalk 3896 ft, coring chalky- shale 4979 ft. A. F. Richardson et al's F. P. O'Brien 1 (167-ac), G. S. Clapp sur, 3 mi n by w of Rusk, lcn.

COLLIN COUNTY—Port Bolivar Co.'s O. C. Durning-Clarkston 1-A (140-ac), Wm. Creager sur Pat. 1193, elev 722 ft, show gas 4039-70 ft, sd 4094 ft; A. Shirley 1 (50-ac), Gwynn Morrison sur, 1 mi e Anna, dk.

DELTA COUNTY—W. S. McGee et al's Mrs. P. W. Miller 1 (52-ac), E. Spencer sur, 1 mi sw Cooper, elev 465 ft, top Woodbine Red Beds 1370 ft, top Georgetown lime 3040 ft, dr lime 3450 ft.

FALLS COUNTY—J. Edward Mills et al's Sam Grucholski 1 (40-ac), Dennis Herold League, 5 mi sw Kosse, elev 521 ft, Austin chalk 2765-2946 ft, Georgetown lime 3544-3825 ft, top Edwards lime 3867 ft, top upper Glen Rose 4074 ft, sd 4114 ft.

FRANKLIN COUNTY—Atex Oil Co.'s R. L. Jaggers 1, J. Humphreys sur, 1½ mi nw Winfield, elev 398 ft, Pecan chalk 1810-1850 ft, sd 3440 ft. Virginia Hudson et al's B. M. Patterson 1, E. Rice sur, 3 mi sw Hagansport, elev 411 ft, dk.

FREESTONE COUNTY—Fred R. Lovering et al's E. Bonner-Scott 1 (23-ac), H. Awalt sur, 7 mi n Fairfield, sd 1500 ft. Red Lake Oil Co.'s M. Wheeler 1 (160-ac), J. Y. Aguilera sur, 3 mi se Turlington, Red Lake area, dr 500 ft. Roger Steward and Velvet Oil Co.'s E. H. Beauchamp 1 (100-ac), E. Greene sur, 4 mi nw Fairfield, mim.

GRAYSON COUNTY—Olson Drlg. Co.-Jas. H. Gardner & Broswood Oil Co.'s D. R. Uttiger 1 (860-ac), P. P. Cady sur, 4 mi nw Denison, cem surface cas.

HENDERSON COUNTY—Wm. McDougal, Tr. et al's Elvira Price 1 (216-ac), M. Matthews sur, 3½ mi s Trinidad, elev 294 ft, sp and sd. S. Sparks, Keeley et al's Theo. H. Berry 1, Aaron York sur No. 847, 5 mi s of Brownsboro, lcn.

HOPKINS COUNTY—W. P. Chandler et al's J. K. McLaren 1 (5-ac), A. O. Wetmore sur, Sulphur Bluff area, lcn. Empire O&R Co.'s J. E. Worsham 1 (150-ac), Alex O. Wetmore sur, Sulphur Bluff area, lcn. Walter L. Goldston et al's H. J. Smith 1 (250-ac), Jas. A. Craft sur, Sulphur Bluff area, elev 448 ft, Pecan chalk 1550-1601 ft, top Woodbine 3505 ft, top Georgetown lime 3645 ft, coring Paluxy sandy-lime zone 4472 ft.

HOUSTON COUNTY—E. R. Mount, Branch et al's Dr. P. S. Griffiths 1 (136-ac), Frank Johnson sur, 3 mi sw Crockett, sp and sd.

HUNT COUNTY—Penn Oil Corp.-Elmer S. and Fox Wood's A. B. Manning 1 (57½-ac), Sally Owens sur, 5 mi ne Lone Oak, elev 599 ft, dk.

KAUFMAN COUNTY—E. G. Colton, R. P. Lester et al's Barrow Bros. 1 (40-ac), J. D. Taylor sur, 8 mi ne Elmo, elev 528 ft, top Georgetown lime 4194 ft, top Paluxy series 4773 ft, top upper Glen Rose 5165 ft, top massive anhydrite 5742 ft, jkd and abd 5968 ft, may drill second test.

LAMAR COUNTY—J. A. Forester et al's J. S. Woodward 1 (183¾-ac), J. W. Woodward sur, 1½ mi e by s of Minter, elev 402 ft, top Georgetown lime 2256 ft, Paluxy sand 3060-3144 ft, top anhydrite 3735 ft, base hard anhydrite 4075 ft, broken to 4105 ft, sd 5129 ft.

NAVARRO COUNTY—Calto Oil Co. et al's Etta Black 1 (160-ac), B. G. Balthrope sur, 1 mi sw Bazette, sp and sd. Phillip S. Groginski et al's S. P. Love 1 (128-ac), Richard Goad sur A-33, 3½ mi sw Corsicana, elev 422 ft, Austin chalk 1153-1525 ft, top Woodbine 1918 ft, top Georgtown lime 2270 ft, base lime near 3000 ft, dr 3110 ft.

RED RIVER COUNTY—J. S. Abercrombie Co.-Harrison Oil Co.'s Southern Pine Lumber Co. 2 (392.37-ac), D. D. Bruton sur, dr 2106 ft. T. J. Farrington et al (was Garson & Seigel's) W. T. Morris 1 (351-ac), Joseph Guest sur, elev 478 ft, sd 1200 ft. F. D. Jones et al's Monkhouse Bros. 1 (125-ac), John Ware sur, 10 mi n Clarksville, top Georgetown lime 736 ft, sd 1147 ft. M. Petroff et al's R. G. Norris 1 (176-ac), Joseph Guest sur, 2 mi w Detroit, sp and sd. Dale Sneed, R. H. Manning and Texfornia Co.'s Hooker-Hughes 1 (80-ac), MEP&P Ry. sur No. 642, 6 mi sw Lydia, elev 307 ft, Pecan chalk 995-1302 ft, top Austin chalk 2018 ft, sd 2720 ft.

ROBERTSON COUNTY—J. Edward Mills et al's Tony Congelosi 1 (75-ac), Geo. A. Nixon sur, 3½ mi sw Hearne, sd 1830 ft.

SMITH COUNTY—Carolyn and Hastings et al's Bennett 1 (80-ac), Robt. Walters sur, 3 mi ne Winona, Pecan chalk 3325-3660 ft, Austin chalk 4585-4616 ft, top Woodbine 4887 ft, sd in water sand 4908 ft.

UPSHUR COUNTY—B. L. Watson et al's W. O. Irwin 1, D. R. Cannon sur, 3 mi ne Coffeeville, lcn.

WOOD COUNTY—G. W. Nix et al's Mrs. E. A. Russell 1, John Delap sur, 4 mi w Golden, dk.

EAST TEXAS BORDER COUNTIES

HARRISON COUNTY—Overtex Oil Co.'s Platt 1, F. C. Baker sur, elev 276 ft, dry abd, td 5167 ft. Weiss et al's W. L. Rudd 1, Wm. Steele sur, lcn. Hanover, Bergendoll et al's Buchanan 1, Wm. McIlvain sur, dr 4155 ft shale and shells.

MARION COUNTY—Tom Bell et al's Carrie Moseley 1, David Lane sur, 12½-in csg 72 ft, dr 500 ft.

PANOLA COUNTY—Gulf's Pierce & Chesbro 1, J. H. Shahan sur, elev 233 ft, massive anhydrite 4778-5012 ft, tested 160 ft mud & sw 5128-38 ft, dr 5220 ft, lime & shale. A. C. Glassell's Frost Lbr. Co. 1, Mary S. Potts sur, elev 216 ft, massive anhydrite 4632-4840 ft, sg 4890 ft & 5663-75 ft, tested sw 4994-5004 ft, sg 5897-5901 ft, cemt 7-in csg 5715 ft, td 6002 ft, will perf at porous horizons below 4840 ft. Danciger O&R Co.'s J. W. Tatum 1, Alfred Bissell sur, sd 21 ft. Logansport P. L. Co.'s Rushing 1, Mannan Smith sur, elev 180 ft, sd 2694 ft. Magnolia Pet. Co.'s E. A. Hull 1, Thos. Applewhite sur, spd. Motex Oil Co.'s J. M. Furrh 1, J. M. Alston sur, mim.

SAN AUGUSTINE COUNTY—Hindman et al's Cartwright 1, Santiago Carni sur, dry abn td 3502 ft.

SHELBY COUNTY—Rubeling & Potter's O. H. Polley 1, Wm. Whisner sur, sd for heavier rig, 4200 ft. Farley & Sommers' Green 1, J. English sur, dr 3365 ft shale & chalk. Mulroy & Curtin's C. Hayden 1, D. F. T. Yordt sur, sd 2870 ft. H. A. Stebbinger et al's Pickering Lbr. Co. 1, 5-in csg 4998 ft, tested est 5 mil ft gas & 48 bbls dist daily, si, td 5029 ft, oolitic lime. E. L. Chapman et al's Pickering Lbr. Co. 1, C. E. Henry sur, ow, treated with acid making 1,500,000 cu ft gas daily through ½-in tub choke, 900 pounds cas pressure, turned into Joaquin-Logansport line, td 3840 ft.

SOUTH TEXAS

ATASCOSA COUNTY—Helvetia Oil Co.'s Susie Pratt 1, 176-ac tr, F. de la Garza sur No. 46, 1 mi sw Anchorage, sand and sandy shale 2249-2300 ft, set 7-in csg 2245 ft, swabbed 44 grav oil, dd 3680 ft, pb to 3000 ft, set 800 ft of 4½-in liner, swabbed dry through tubing, pulled liner, dr in Georgetown limestone 3680 ft. McNeel Pet. Co.'s W. E. Tom 1, 2200 ft nel, 2000 ft sel, W. E. Tom & Bros. sur 10, lcn. L. W. Stieren's A. A. Crawford 1, 660 ft out of se/cor sur, 160-ac tr in J. O. Crawford sur 69, lcn, will go to Edwards, drop until work begins.

BASTROP COUNTY—American Pet. Expl. Co.'s Martha Freytag 1-A, 50 ft e No. 1, sd 410 ft, drop. Joe E. Mills' Chas. W. Eskew 1, Samuel Wolfenberger sur 18, spud in. Paul C. Teas' Vinklarek 1, 100-ac tr, S. Millet league, 10 mi s Smith Villa, top Wilcox 1320 ft, top Carrizo 1250, dr 5175 ft.

BEE COUNTY—W. V. Bowles' C. Mengers Sr 1, W. Allen sur, 100-ac tr, 4½ mi w of Skidmore, abd 6010 ft. Devonian Oil Co.'s Manning 1, J. Poitevant sur 1, 5 mi w and slightly s of Mineral, bldg rd. Dirks Bros.' A. M. Holzmark 1, in Foley area, 330 ft wl, 990 ft sl of 100-ac lse, S. May sur, ½ mi ne disc well, lcn. Humble Oil & Refining Co.'s Mrs. M. M. McKinney 9, L. C. Randolph sur, 1¾ mi se Pettus, mim. Randon Oil Co.'s Handy Bros. 1, center nl and sl dividing blks 12 and 13 Howeth & Swiger subd of Handy ranch, Jeremiah Tool sur, ab 66, 6 mi ne Skidmore, dr 4345 ft. Siznod Oil Corp.'s A. M. Holzmark 1, 20-ac lse, in Samuel May sur, 1¼ mi se Voss field, td 4101 ft, set 7-in csg 4081 ft, woc.

BEXAR COUNTY—Algra Oil Co.'s Edward C. Peters 1, Miguel Gotari sur 5, sec 4, 13 mi se San Antonio, dr sh 610 ft. American Gas Co.'s Oliver 5, 400-ac tr, M. F. Rodriguez sur, dr lime 3262 ft. Carter & Ingersoll's Louis Mann 1, 83.5-ac tr Stephen Jett sur 53, 3 mi s Von Ormy, sd 1357 ft. Mayers & Smith's H. E. Bass et ux 1, 75.5-ac tr F. A. Ruiz sur 47, 2 mi se Von Ormy, set 8-in csg, perf 460-90 ft, running tubing. R. P. Whitfield's Sweeny 1, G. H. & S. A. Ry sur, 11 mi sw San Antonio, midway between Von Ormy and Gas Ridge, reinstated, coring 816 ft. Woodward & Hardie's R. W. Devilbiss 1, John Devilbiss sur, 1 mi s Thelma, swabbing 2284 ft, showing considerable water and scum of oil.

BROOKS COUNTY—California Co.'s Mestina 1, Alta Mesa area, 4840 ft nl, 4185 ft el B. Garcia tr 5, La Mestina de Gonzalina Gr. ru.

BURLESON COUNTY — M-R Exploration Co. Inc.'s J. M. Fountain 2, in W. Raleigh sur, blk a-47, dr 350 ft. Red Bank Oil Co.'s Nellie Gramm 1, Eliza Santef sur, 2500 ft nw No. 1 Gramm, 7 mi w Chreisman, dr hard ch 5125 ft.

CALDWELL COUNTY—Brown Dr. Co.'s W. J. Pope 1, John D. Rains sur, 8 mi se Lockhart, sd 2100 ft. Marts & Beavens et al's Mrs. A. Moody 1, 189-ac lse S. Seal sur, 2 mi Wheeling, dr Buda 2394 ft. J. G. McKenzie's J. M. Pierce 1, S. Seal league, w of Luling, ru. H. B. Starkey's (J. L. Elam et al) Francis-Brown-Cochran 1, W. F. Young sur, 3 mi e Luling, sand with so and g, 1742-47 ft, set 5 3/16-in csg on packer completing when bailer blown out of hole, attempted to core in sd/tr hole 1735 ft, went into old hole, sd 1792 ft. Taylor Ref. Co.'s Denie Miears et al 2, in Dale area, 134-ac tr, Nicholas Kelly sur, abd 860 ft.

CALHOUN COUNTY—Continental's Austin 1, sec 12, blk "H" Pedro Garcia sur, 1 mi n of other heaving shale wells, Seadrift prospect, sec 11, ¾-in csg at 6598 ft, td 8825 ft, ds struck at 8521 ft, set csg on btm, ran 2½-in tubg to 8521 ft, swabbed down to 8400 ft, cutting out 6-in csg, pb td 8521 ft 1st cement job failed to hold, cemented again, set w/s 8471 ft, sdtr td 8750 ft, setting csg, will probably test sand 8700-20 ft where previous show o and g. Hiawatha Oil Co.'s John Roemer 1, J. J. Ogsberry sur, 8 mi s Port Lavaca, td 7560 ft, set 8⅝-in csg 5900 ft, sticky sh and lime 7832 ft. Matagorda Oil Corp.'s J. Brundrett 1, 330 ft nel and nwl of tr 8 in Wm. Little sur, ext sw cor of county on Matagorda Island in lot 294 of Brundrett sur, reinstated, td 1600 ft, set 13-in csg, woc.

DUVAL COUNTY—Benedum & Trees' Sevier 1, Driscoll 6039-ac tr Palo Blanquite Gr, 2 mi nw Realitos, dr 1502 ft. Frank Buttram's N. L. & L. Co. 1, sur 102, 5 mi nw Eagle Hill, sd 1925 ft, Frank J. Gravis' Gravis et al 2, sur 250, 10 mi sw San Diego, coring 4610

ft. Harvey & Henderson's J. F. Welder heirs 1, 80-ac in sur 102, td 1000 ft, dr below 10-in sur csg. Lipscomb & Daubert's W. R. Peters 1, J. Tigert sur 321, 2½ mi e Lopez field, dr 1200 ft. Pan American's Welder 1-H, 160-ac lse in sur 103, 1 mi sw of Loma Vista, showed gas on dst of upper Loma Novia sand, dr to 3006 ft, pb to 2866 ft, set 7-in csg 2822 ft, bad cement job, cement csg for 4th time, swab dry through csg, bridge of 1000 ft in hole, co bridge, pb 2863 ft, now co. Shell's Welder heirs 1-B, 79.3-ac lse in sur 69, 1¼ mi n of Loma Vista field, 3 attempts to dst in sandy shale 2863-74 ft failed, td 3242 ft in shaley gray water sand, ran electric formation test, pb td 2874 ft in sh, set csg, bad cement job, recemented, made squeeze cement job, pb 2854 ft, abd.

EDWARDS COUNTY—Plateau O & G Co.'s Mrs. R. L. Hatch 1, J. W. May sur, sec 66, HE & WT RR sur, td 1302 ft, resumed dr 1242 ft.

FRIO COUNTY — Thorton Davis et al's Halff & Oppenheimer 1, John D. Clare sur 336, 1 mi e Pearsall chalk production, dr 5448 ft in hard ch.

GOLIAD COUNTY—California Co.'s Landgrebbe 1, 100-ac tr in John Hancock sur, 8 mi n Goliad, td 5022 ft, set 7-in csg 4795 ft, pb 4812 ft. flowed 30 bbls 2½ hrs, ¼-in, went dead, ran swab severl times, did not resume flow, sd to build up pressure. Felmont Corp.'s Mrs. W. O. Maetze 1, 1866-ac tr, Gertrude Baerrara sur, 6 mi ne of Goliad, td 5660 ft, pb 3498 ft, sands on electric formation test at 2900 and 3400 ft, will perf.

GONZALES COUNTY—M. S. Holliday et al's T. G. Edwards 1, in Cheapsides area, W. W. Pace 1/3rd league, blk A, Holliday subd, 3 mi sw of Cheapsides, ru, sp.

GAUDALUPE COUNTY—Pat Armstrong's J. Z. Fulcher 1, Robert Smith sur, 2 mi sw Prairie Lea, 70 ft sw Hoosier test, abd 2477 ft; Paul Armstrong's M. Tiller 1, 10-ac tr, J. C. King sur, 2 mi ne Kingsburg, sd 1765 ft. W. G. Campbell et al's (F. N. Gallagher) Lay 1, on 20-ac lse, J. K. Davis sur, 800 ft e Stagel & Ramone crevice wells, td 2393 ft, t. ch 2381 ft, cored in 12 ft, show saturation, set csg wocs. Chas. Culver et al's Wm. Vorpahl 1, Geo. W. Edwards sur 56, 4 mi se New Berlin, dr 120 ft. Eickenroht & Gallagher's O. H. Johns 1, 840-ac tr, Green Dewitt sur, 5 mi sw South Darst Creek, td 3204 ft, td in Georgetown set 6⅝-in csg at 2700 ft, top ch 2920 ft, top Eagleford 5081 ft, top Buda 3122 ft, top Del Rio 3184 ft, top Georgetown 3200 (?) ft, will pb about 5 ft. F. P. Hynes et al's H. A. Linne 1, 415 ft nwl, 250 ft swl of 224-ac tr, A. Reese sur, 12 mi se Seguin, sh 730 ft. Long & Ross' Ed Feliz 1, 1½ mi s fr New Berlin, 75-ac, V. Duran sur, sd 480 ft for ds. Riddle Oil Co.'s E. Nolte et al. J. Sowell sur, 6 mi e Seguin, 6⅝-in csg 1780 ft, td 1856 ft, ch, swabbed down to 1400 ft, small oil show, pulled csg in two at 1410 ft, sidetracked, sd/tr td 1747 ft, 6⅝-in csg collapsed, pulled out pipe, lost 400 ft, saturated 1740-1856 ft, swabbing through tubg, showing for small well. V. G. Schimmel's Heaner heirs 1, Green Dewitt sur, td 60 ft, set 10-in csg at 20 ft.

HIDALGO COUNTY—Pantana Pet. Corp.'s Harding 1, 850 ft w of old Quintana Engleman 1, in lot 11, blk 94 in Mestinas gr, Missouri-Texas Land & Irrigation subd, td 7840 ft, blew out. H. J. Porter et al's Sweeney Est 1, lot 1, Waynes Wood subd 1, 6 mi sw Donna, dr ahead 2665 ft. Union Sulphur Co.'s ARGL & L Co. 10, blk 50, tr 2418, N. Capisallo dist, coring in hard shale 8306 ft.

JACKSON COUNTY — Steinberger Pet. Corp.'s S. G. Drushell 1, lot 6, Gale subd of Hayes Ranch in N. Rodriguez sur, se edge of Edna Gas field, td 7180 ft, fsg for bit.

JIM HOGG COUNTY—J. H. Meek Jr.'s Martinez Est 2, sur 623, coring 3059 ft, top sand 3059 ft. Pan-Ultimo Oil Co.'s (Theo. Hicks et al) Kohler 1, blk 9, Noriacitas gr, 3 mi nw Hebbronville, dr 2559 ft. Locke Purnell & Gifford Oil Co.'s Gallagher 1-A, blk 128, Pippin subd, Randado Gr, coring 3481 ft, cap 3447-51 ft, gas show 3451-57 ft, sw with sul/odor; C. O. Gallagher 1-B, 40-ac tr Randado Gr, blk 190, Pippin subd, lcn, drop until work begins. Henry Swift's Holbein 1, center of blk 58, sec 3, Las Animas Gr, nw portion of county and about 1 mi nw of Darby test, reinstated, dr 2377 ft.

JIM WELLS COUNTY—Camp Drilling Co.'s Jane Schallert 1, 1134-83-ac tr, sh 3-A Las Presenos de Abajo gr, 2¼ mi w Bentonville field, gas sand 3077-84 ft, td 5283 ft, reaming. Tom Graham's (Gist & Graddy) F. Bennett 1, lot 87, sec 76, Holdeman subd, 2 mi w Premont field, td 2350 ft, cored sand 2340-48 ft, dst 2340-48 blow of gas 140 ft dr mud cut with oil, cored to 2350 ft still in sand, dst 2340-50 ft showed 5 thribbles (300 ft) 22.6 grav oil, 3 thribbles fresh water, 1 joint fine sand, 15 min. ¼- and ⅜-in ch, swabbing; James P. Luby Estate 1, sh 4, Los Presnos de Abajo Gr, 1 mi w Bentonville townsite, coring 4051 ft. Edwin M. Jones' Almond 1, n½ of H. T. & B. sur 7, ab 232, td 842 ft, set 10¾-in csg woc. Putnam et al's Canales Est 1, center blk 32, Mosser subd of Canales Est, dr 2962 ft.

KIMBLE COUNTY—Wilcox O. & G. Co.'s Hugh Spiller 1, sec 15, Brooks & Burleson sur, dr 2001 ft.

KLEBERG COUNTY—Clark et al's Kivlin 2, Fernando Creek, blk 8, sec 39, KT & I subd, td 2142 ft, 7-in csg 2124 ft, sand 2124-34 ft, tested sw slight oil show sd orders.

LASALLE COUNTY — Kennedy & Johnston's Gilmer & Wildenthal 1, 140-ac tr in sur 283, 8 mi se of Cotulla, dk (recemented). W. H. Vernor's M. G. Jeffries 1, sec 726, HE & WT RR sur, sd 400 ft.

LEE COUNTY—James E. Pederson's C. A. Turner 1, 65-ac, David Hudson sur, 1½ mi se Tanglewood, sd 6150 ft.

LIVE OAK COUNTY—Barber & Miller's W. M. Blanks 1, A. B. & M. sur 103, 4½ mi ne Whitsett, abd 760 ft. Dirks Bros.' Atkinson 1, 350-ac tr, L. Ayers sur in nw cor of county, sd 1100 ft. J. H. Durbin's Marbach 4, 429-ac tr, Stephen Hays sur, 2½ mi sw of Whitsett, td 902 ft, sand 897-900 ft, dr plugs. R. H. Feltner et al's Sanger Ranch 1, w½ of G. C. & S. F. sur 391, sp. O. W. Killam's Schultz Live Stk Co. 1, John Hefferman sur, n of Three Rivers, td 2270 ft, pulled down mast, repairing. Loma Oil Co.'s Palmer 2, in T. B. Sparks sur, 4 mi sw of Whitsett, dr 480 ft. Maryland Oil Corp.'s Geo. West Est 1, w cor lot 299 in Fernandez & Vaughn surveys, 5 mi sw Geo. West townsite on blk acquired from Whisenant & Trenchard, sd 300 ft to lay water line.

MAVERICK COUNTY—J. W. Boicourt's Edson & Estrada 1, James Eaves sur 68, td 542 ft, running 12-in csg, t. ch 540 ft. Rio Development Co.'s Winchester Kelso 1, 297-ac tr in sur 2, 3 mi n Eagle Pass, sd 804 ft.

McMULLEN COUNTY—Dan Culver et al's Wm. Fahler 3, in Geo. Pittuck sur, dr 540 ft. Hagan Stewart Oil Co.'s J. J. Kunz 1, 350-ac tr in Hely sur, coring 1075 ft. Hill et al's J. Richardson Est 1-A, temp. abd 2775 ft. E. M. Jenkins & Floyd's Raymond Ploscyzk 1, blk 1, James Garner sur, sd 1392 ft. Fred Nute et al's W. H. Fahler 1, 100-ac farm in Geo. Pittuck sur, 4½ mi w Calliham, ready sp. L. D. Ormsby's Griffith 9, 150 ft s and 150 ft e of No. 8, B. Sparks sur A-794, 1058 ft wl, 1420 ft nl of 160-ac tr, 6 mi se Whitsett, recemented 940 ft. Geo. Pickett's W. E. L. Fisher 1, 2400 ft el, 150 ft nl of tr M. Hely sur, 1 mi s Calliham, dr 550 ft. Reynolds & Richardson's Shiner Est 1, 43,000-ac tr in sur 23, sec 83, mim, drop until work begins. Ike Taylor's W. S. Red 1, nw cor Geo. Pittuck sur, still sd, drop.

NUECES COUNTY—Barnsdall's Weil 1, lot 5, McBride Partition, coring 4910 ft. Bunte and Woddley Pet. Co.'s Margaret Kelley 1, sec 4, Range 7, H. L. Kinney sur, 4 mi se Clarkwood, coring 5561 ft. W. L. Hinds Sevier 1-A, in C. Driscoll area, 283 ft sl and el of w/2 fractional section 60, Paul subd of Driscoll Ranch, 65 ft se No. 1, reinstated, dr below 3200 ft. O. W. Killam's Sevier 1, 40-ac tr of sec 112, J. A. Cobosos sur, Bishop subd of Driscoll Ranch, 2 mi s Driscoll townsite, dr below sur csg. Texon Drlg. Co.'s Austin 1, 526-ac tr, 466 ft out of nw cor sh 2, W. W. Chapman subd of the Palo Alto Gr, 1½ mi sw Agua Dulce, reinstated, td 5836 ft, comp. flowing into pits, making wash water and oil, cp 1100 lbs, tp 400 lbs, sand 5756-79 ft, 7-in csg 5756 ft, oil abt 50 grav. (corrected information); Sevier 1, 466 ft sl and wl of 880-ac tr in W. W. Chapman lands, Palo Alta Gr, n offset Texon No. 1 Austin, mi dk and rig. W. A. R. Oil Co.'s Buckholt 1, 258.9-ac tr sh 4, Buckholt partition, Ward sur 3.6, 1 mi se Clarkwood, td 4585 ft, cleaning into pits, making considerable oil, through perf 4448-51 ft.

REFUGIO COUNTY—Tide Water's E. G. Landgraf 1, 220-ac tr in J. Collyer sur, n of Hynes Bay, ru.

SAN PATRICIO COUNTY—Callaway-Crosby & Porter's White Point Dev Co. 1, 438-ac tr Seguin sur 4 and 5, ab 247, sand 4900-15 ft, dst 4899-4915 ft, rec 510 ft, oil, 37 lbs pres-5 min, flowed several hours through ¼- and ⅜-in ch, make 20% oil, balance wash water, killed to deepen, saturated sand 4900-43 ft, dry sand 4943-53 ft, ran electrical formation test, good kick 4901-36 ft, dr ahead to contract, will pb and comp if deeper sands do not produce, td 6500 ft, pb 4900 ft sand. Eleanor Oil Co.'s Wm. Kline 1, lot 5, blk "E", Coleman-Fulton Pasture Co. subd, 2½ mi se of Gregory, closed well, recemented; W. W. Toland 1, 8000 ft n mo. 1 Kline, mi dk and digging pits.

STARR COUNTY—Sam Adams' Garza 1, Military Reservation, sh 20A, porc 80 J. of Reynosa, 5200 ft sw Rio Grande City field, dr 460 ft. J. F. Anderson's Yzaguirre 1, 139-ac tr, porc 79, coring 2720 ft. Howard Bass' Hayden et al 1, s/2 blk 4, sur 47, porc 80, dr ahead 115 ft. Bennett & Lowe's A. Guerra 1-A, sur 293, 4 mi se Cuevitas field, ran electric formation test, temp. abd 2500 ft. F. Davenport's Kelsey-Bass 1, Davenport subd of n

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585-ac of porc 86 and 87, Camargo Juris, 4500 ft ne and slightly Larkins & Warr's Kelsey-Bass 1, 2 mi w Barbacoas field, td 3930 ft, making hole after coring two good sands in 3800 ft section. F. Davenport & Slick Urchel's T. B. Slick Est 1, el of sec 485, reaming down 3856 ft for dst. A. A. Kelley's Higinio Gonzales 1, 100-ac lse, sh 67, porc 71, Juris of Mier, td 500 ft, made dry gas and no oil show on 1 hour dst of sand 430-499¼ ft, sd at 356 ft, drop. J. W. Richards et al's Ysidro Garcia 1, sh 7B, porc 71, Ancient Juris of Mier, 13 mi n Roma, sp and sd. South Coast Oil Corp.'s Isabel S. Lopez 1, lot 11, sh 29B, porc 80, 10 mi n Rio Grande City, lcn for 3500 ft test.

TRAVIS COUNTY—W. B. Bottinfield et al's P. C. Wells Est 1, J. Harper & J. B. Keurk sur, sd 810 ft. Doray & Lefors' Pfluger 1, J. Davis sur, td 80 ft in Edwards.

VICTORIA COUNTY—Plymouth Oil Co.'s J. J. Welder 1, lot 11, 371.9-ac tr S. Belding sur, ab 141, 7 mi e of Nursery, sand 5719-27 ft, dr 6000 ft; R. H. Welder 1, 6371.9-ac lse FH & MG RR sur 15, 9 mi n Nursery, near Dewitt county line, sp.

WEBB COUNTY—Mid-Continent and Oklahoma Co.'s E. T. Lubacher 1, nw sec 1394, dr sh 2230 ft. Sackett & Keoughan's Wilmot Est 1, sur 201, dr 1450 ft. Superior Oil Co.'s J. H. Kirkpatrick 1, sur 18, 1 mi s Leaseholders, 3 mi nw Lopez, abd 2852 ft.

WILLIAMSON COUNTY—H. F. Goff's H. W. Kunza 1, 75-ac in J. Justo Liendo sur, lcn. Fred Hughes' M. A. Bachmeyer 2, C. C. Browning sur, abd 960 ft.

ZAPATA COUNTY—Gilcrease Oil Co.'s Antonio Trevine et al 1, blk 5, sec 3, Mode subd, porc 2 and 3, 17 mi w Comitas field, dr 1700 ft, dry sand 1387-93 ft. Hill & Hill's O. S. Alexander 1, porc 25, td 2610 ft, reaming to 2606 ft. The Texas Co.'s J. D. Jennings (Whitehead) 93, Cerrito Blanco Gr 15, 941.6-ac tr, 1 mi fr Escobas production, dr 2030 ft.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933.

Of The OIL WEEKLY, published weekly at Houston, Texas, for October 1, 1936.

State of Texas, County of Harris, ss:

Before me, a Notary Public in and for the State and County aforesaid, personally appeared A. L. Burns, who having been duly sworn according to law, deposes and says that he is the Business Manager of The OIL WEEKLY, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: R. L. Dudley, 3238 Huntington Drive, Houston, Texas.

Editorial Director: S. W. Robinson, 5002 Scotland, Houston, Texas.

Editor: Warren L. Baker, 1126 Crocker St., Houston, Texas.

Managing Editor: J. Kent Ridley, 1018 Isabella, Houston, Texas.

Business Manager: A. L. Burns, 4311 San Jacinto, Houston, Texas.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state).

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

A. L. BURNS, Business Manager.

Sworn to and subscribed before me this 24th day of September, 1936.

(Seal) J. KENT RIDLEY.

(My commission expires June 1, 1937.)

TEXAS GULF COAST

BRAZORIA COUNTY—Gulf's Wilkes Smith 2, Lochridge prospect, J. W. Hall sur, dr hard sand 5378 ft.

BURLESON COUNTY—M. R. Exploration Co.'s Fontaine 2, 1300 ft n of No. 1, Wm. Raleigh sur, dr shale 3460 ft. Red Bank Oil Co.'s Neely Grann 1, Chriesman area, E. Sante sur, dr chalk 5330 ft.

CHAMBERS COUNTY — Sun's Acom 1, Seabreeze prospect, T&NO sur, sec 128, dr shale 6002 ft; same operator's White Estate 2, Seabreeze prospect, T&NO sur, sec 128, dr shale 6800 ft.

COLORADO COUNTY—Sterling's South 1, Garwood area, I&GN sur, sec 41, sdtr 5940 ft.

GRIMES COUNTY—Crooke Brother's Greer 1, near Carlos, P. B. Connor sur, sd, will probably abn at 3404 ft.

HARDIN COUNTY—Republic Production Co.'s Brooks 2, relief well, Silsbee prospect, J. W. Brooks sur, running an electrical logging device 7071 ft.

HARRIS COUNTY—Bunte Oil & Gas Co.'s Graves 1, Bammel prospect, C. Walters sur, dr shale in sdtr hole 4485 ft. D. B. Cherry et al's Dodger 1, Epsom Downs area, J. T. Harrell sur, dr shale 1265 ft. Stanolind's Angello Candelari 1, Reels & Troubough prospect, Reels & Trobough sur, dr shale 7198 ft.

LIBERTY COUNTY—J. C. Mayo's Moore 1, Rumayor prospect, J. F. De Rumayor sur, dr shale 5449 ft.

JEFFERSON COUNTY—Sun's Broussard 2, Labelle prospect, W. B. Burton sur, lcn.

MATAGORDA COUNTY — Continental's Robbings 2, Citrus Grove prospect, C. Franz sur, bldg roads. Hammond Exploration Co.'s Croker 1, South Bay City field, E. Hall sur, dk. Sun's Craig 2, Hawkinsville area, T. Williams sur, dr salt 838 ft. Tetts & Harris's Pierce Estate 1, Blessing prospect, J. W. E. Wallace sur, dr shale 5351 ft.

MONTGOMERY COUNTY—W. W. Chapman's Thomas Foster 1, Willis area, D. Pevehouse sur, ru. H. E. William's L. A. Peel 1, ne of Montgomery, O. Shannon sur, dr shale 4269 ft.

POLK COUNTY—Peyton Brothers' McDonnald 1, w of Ace, T. J. Manard sur, dr shale 4116 ft.

WALKER COUNTY—G. C. Gossage et al's Carey Land & Dev. Co. 1, 3 mi e of Dodge, Dan J. McDaniel sur, pits.

WASHINGTON COUNTY—Carl Dyer et al's Thomas 1, n of Brenham field, H. Hensley sur, sd 2657 ft. Sun's Lauter 1, Clay Creek area, N. Clay sur, running screen and liner at 7471 ft.

WHARTON COUNTY — Texas Crusader's Fee 1, Magnet area, Smith & McKenzie sur, sd 5562 ft. R. B. Watson's Thomas (Sweet) 1, Magnet area, Smith & McKenzie sur, sd lcn. Felmont's General Mitchell 1, Spanish Camp prospect, D. Wade sur, dr shale 6461 ft. Pure's National Bank of Topeka, W. F. York sur, dr shale 6398 ft. Texas Crusader's Hawes & Nelson 1, nw of Lane City, S. Castleman sur, dr shale 4229 ft.

UTAH

GRAND COUNTY—Columbia Crude Corporation's Rath-Government 1, ne sw ne 12-25s-20e, sd for 6¼ in csg. Utah Southern Oil Co.'s Hyde Government 1, s nw nw 32-22s-2e, dr 5390 ft.

EMERY COUNTY—California Co.'s Unit 1, sw 22-23s-11e, circulating at 2520 ft.

WYOMING

ALBANY COUNTY — Amerada Petroleum Corporation's Morton 1, csw sw 13-13n-68w, dr 4689 ft. California Co.'s Bath 1, ne sw 1-16n-76w, mit. Hal Blakeman's Chappel 1, cne nw 33-21n-76e, dr 1532 ft. James Lake Oil Co.'s George & Hunt 1, nw ne se 5-17n-75w, dr 4460 ft.

CARBON COUNTY — General Petroleum Corporation's Union Pacific 1, sw sw sw 5-19s-33w, dr 4456 ft. Medicine Bow Oil Co.'s Hintze Government 1, cne se 18-22n-78w, dr 1590 ft.

CONVERSE COUNTY—Wyoming Southern Oil Co.'s Salisbury 1, northwest corner nw se 27-32n-69w, dr 210 ft. E. B. Jones' State 1, sw sw sw 16-32n-69w, sd.

GOSHEN COUNTY—Ohio Oil Co.'s Joseph A. Waggoner 1, cne ne 14-28n-63w, ru.

HOT SPRINGS COUNTY—Empire State Oil Co.'s Larson 1, ne se nw 32-44n-92w, dr 1580 ft.

NIOBRARA COUNTY — Adams-Louisiana Co.'s A. L. Spaugh 1, cnw ne 18-35n-65w, dr 1942 ft. Adams-Louisiana and H. V. Elwell's Joss 1, cs se nw 1-34n-66w, mit. Lewis Gokel's 1, sw ne 31-34n-62w, dr 945 ft.

PARK COUNTY—General Petroleum Corporation's Government 1, nw nw nw 33-47n-100w, spd.

PLATTE COUNTY—Dividend Oil & Refining Co.'s 1, s nw sw 17-24n-66w, dr 453 ft.

WESTON COUNTY—Gose Oil Syndicate's Gose 1, 28-48-65, dr 4960 ft. John Brorby's Lemke 1, se ne 18-35n-65w, dr 637 ft.

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This Week with the Industry's EQUIPMENT SUPPLIERS

Jon R. Long Has Expanded Organization

Jon R. Long, Fort Worth, Texas, has established an export office and also opened a new warehouse.

The export office is with Petroleum Machinery Corporation, 30 Rockefeller Plaza, New York, and provides comprehensive representation in foreign oil fields in addition to competent engineering advice and service.

The company has opened a warehouse at 859 Hope Street, Shreveport, Louisiana, where a complete stock of gas-lift and pumping equipment will be maintained. This district is under the management of Jon R. Long, Jr., who has been associated with his father for the past three years.

Jones Field and Factory Groups Meet

The entire sales force of The S. M. Jones Company spent September 6-9 in a combined meeting with the company's engineering and manufacturing departments in the general offices of the company in Toledo, Ohio.

The purpose of the meeting, according to P. C. Jones, president, was a thorough discussion of field problems pertaining to sucker rods and, quoting Mr. Jones, "A trained field staff covering all important fields, cooperating with producers and working in close harmony with the factory men and engineers is absolutely essential today in giving the industry the kind of sucker rods that will fit its various pumping problems."

While in Toledo the field force of The Jones Company was shown the many improvements effected in the manufacturing plants of the company during the past year.

Many attending the meeting came from California, New Mexico, Texas, Oklahoma, Louisiana, Kansas and Michigan.

Lukens Appoints Curtiss Assistant General Superintendent

Lester M. Curtiss, who has been superintendent of production at Lukens Steel Company, Coatesville, Pennsylvania, has been promoted to assistant general superintendent, according to an announcement made today by Robert W. Wolcott, president of the company.

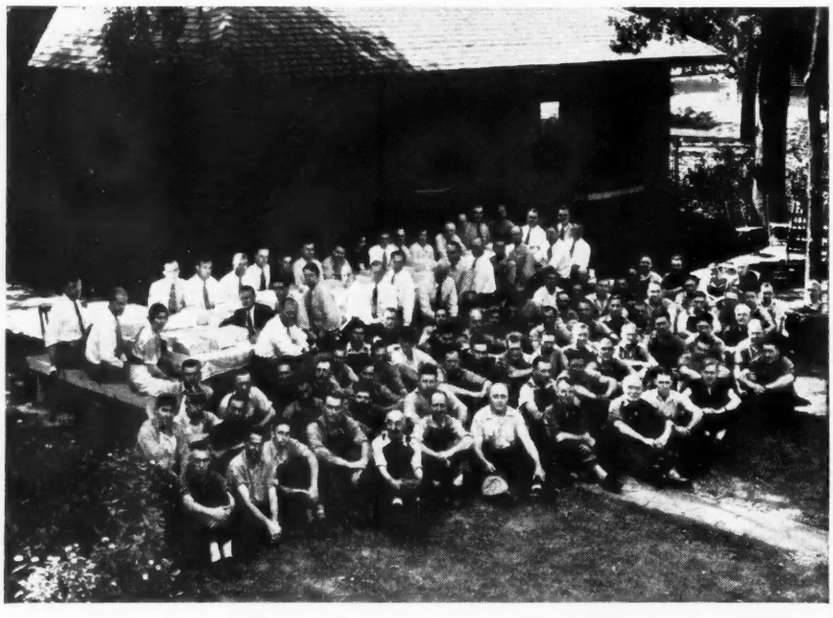
Curtis was born April 14, 1893, in Norfolk, Connecticut, and attended public school and the Robbins School, later going to Wilson Military Academy at Somerville, New Jersey, preparatory to matriculation at Lafayette College, Easton, Pennsylvania. He graduated from Lafayette in 1915 with the degree of Bachelor of Science, having majored in chemistry.

In the same year, Curtiss joined Merck & Company at Rahway, New Jersey, serving in its chemical manufacturing department for a year. He then joined Harrisons, Inc., Philadelphia, working in the acid manufacturing department until August, 1917. During the war, Curtiss served as first lieutenant in the Field Artillery.

In 1919, Curtiss joined Lukens Steel Company as assistant engineer of tests, holding that position until 1923, when he was made engineer of tests. In 1925, he was promoted to assistant superintendent of plate mills, and served in that capacity until 1928. He was then appointed superintended of the Lukens 140-inch mill and the Lukens 206-inch mill, the latter being the world's largest plate mill. Curtiss retained supervision of these two mill units until 1932, when he was promoted to superintendent of plate mills, in charge of all mills of the company. In October, 1935, Curtiss was again promoted to superintendent of production at Lukens, in charge of all production facilities of the company.

LESTER M. CURTISS

Newly appointed Assistant General Superintendent, Lukens Steel Company, Coatesville, Pennsylvania



The S. M. Jones Company sales force gathered at Toledo

NEW EDITION
Marking system for Valves and Fittings

A new edition of the MSS "Standard Practice" covering MSS Standard Marking System for Valves, Fittings, Flanges and Unions, SP-25-1936, has just been issued by the Manufacturers Standardization Society of the Valve and Fittings Industry.

The method of applying the general rules for marking as set forth in SP-25 is more specifically visualized in this new edition, by the inclusion of a number of tables definitely outlining the standard method of applying uniform markings to a wide variety of products.

SP-25 is one of a series of "Standard Practices" developed and published by the Manufacturers Standardization Society of the Valve and Fittings Industry. Copies of SP-25-1936, price 50 cents each, may be secured from the Society, 420 Lexington Avenue, New York, N. Y.

Vapor Recovery Regulator

Shand & Jurs Company, Berkley, California, announce availability of Bulletin No. 772, describing a super-sensitive vapor recovery regulator. The bulletin consists of 6 pages and contains photographs and blue prints.

Gas Electric Plants

The Moon Manufacturing Company, 108 North Jefferston Street, Chicago, has issued a 4-page, illustrated bulletin describing air-cooled, gas-electric lighting plants, available in 4 types.

Squeaks from the Bull Wheel

Imitations

An entertainer at Fort Worth's Frontier Centennial celebration was paying tribute to the genius of Sally Rand, another of the entertainers there. "She originated the fan dance," said he, "and now there are hundreds of other fan dancers and other similar dancers . . . For instance, the Apple Dancer at the Dallas Centennial Exposition, dancing with an apple instead of a fan . . . And now, I understand, there is a Midget dancer, using a grape instead of an apple."

Keep Circulating

Do you believe in divorce?

Yas, suh, I does.

How comes you believes in divorce, woman?

Well, it's this way, Judge. I sorta feels we need somethin' to keep us women in circulation.

Sit Down!

"So you are the new girl," said the young spark to the new waitress in his hotel. "What shall we call you?"

"Pearl, sir."

"The Pearl of Great Price?"

"No, sir, the Pearl cast before swine."

Appropriate

"Professor, I have made some money and I want to do something for my old college. I don't remember what studies I excelled in."

"In my classes you slept most of the time."

"Fine! I'll endow a dormitory."

Saving Wear

McTavish was the proud owner of a new cash register. One day, when an old friend came into his place of business and bought a cigar, the customer noted that McTavish pocketed the money, instead of putting it into the drawer.

"Why not ring it up" he asked. 'You'll be forgetting it."

"Oh, I'll not forget it," replied McTavish. "I can keep track of it in my head until I get a dollar, and then I'll ring it up. It saves the wear and tear on the machine."

Kid Stuff

"You shouldn't make faces at the little bulldog."

"Well, he started it!"

Young Man's Fancy in the Fall

What's your greatest ambition, fish?

To die a year sooner than you do.

Why so, fish?

So I'll be a sophomore in hell when you get there.

Time

My daughter, I must speak severely. Who was that man you were kissing at the back door last night, the postman or the policeman?

Was it before or after eight o'clock?

Oh, Oh

Although it was Wiggin's first reception, his buttling was perfect.

"Stand erect and announce the name of every person who comes to the door during the afternoon," Mrs. Van Ritzer had instructed him.

Wiggins had been doing elegantly. All were present now but the guest of honor. He should arrive most any time.

All eyes focused on Wiggins as he paused to announce the guest of honor. A hush fell over the big reception room. This was the great moment of Mrs. Van Ritzer's most formal affair.

Wiggins cleared his throat and called in a firm voice:

"Mister Yeagley, the Fuller Brush man!"

A Traveler

Now there's a general for you. One day you read about him in Mexico, the next in Cuba and a day later you hear he's in Europe.

To which general do you refer?

General Chaos.

Hard, Cold Cash

"Cashing a personal check is about the hardest thing in the world."

"Yes, indeed. People either don't know you well enough or they know you too well."

Up to Father

Well, my boy, any college debts?

Nothing, Father, but what with diligence, economy and stern self-denial you will be able to pay.

Too Close

"Has your wife any distant relatives?"

"No. They have all come to live with us."

Dangerous

An eight year old from a neighboring town created a scene in a Cut Bank department store this week. His mother was buying him a sweater and the salesman asked: "Do you want a turtle neck, or a V neck?"

"Don't get me a V neck mother," he fairly howled. "My teacher wears one—she stooped over the other day and one of her lungs fell out."

The Scotch Again

Bride: Tee, hee, darling, are you going to wash my back when I take a bath?

You're darned right I am. I've noticed that you're wasteful as the dickens with soap.

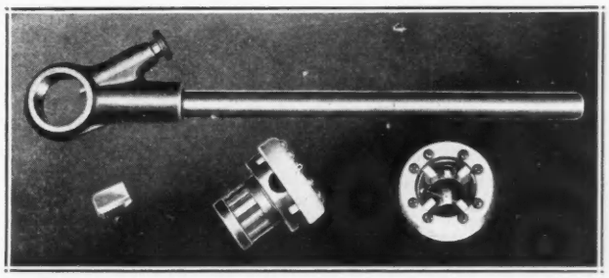
Like Papa

"Mama," said little Johnny, "don't men ever go to Heaven?"

"Why, of course, dear. What makes you ask?"

"Because I never see any pictures of angels with whiskers."

"Well," said mother thoughtfully, "some men go to Heaven, but they get there by a close shave."



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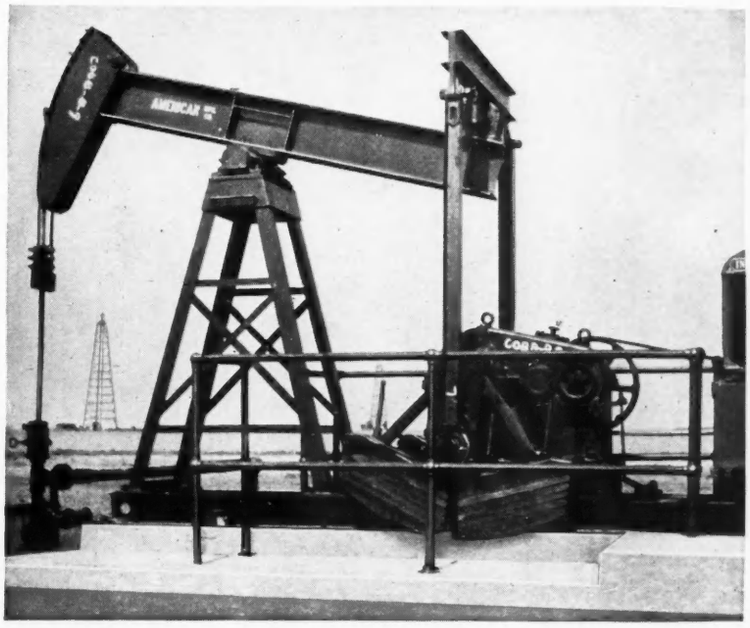

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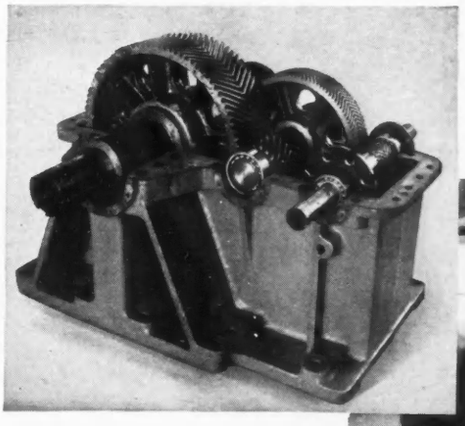

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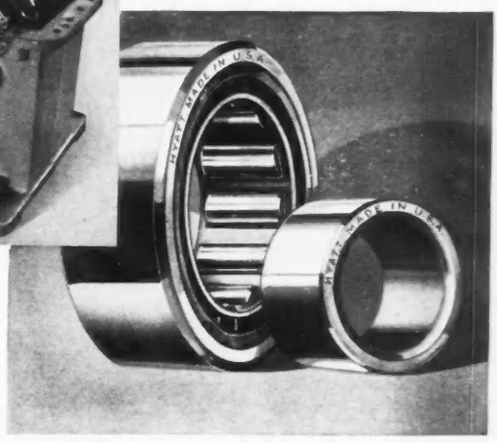

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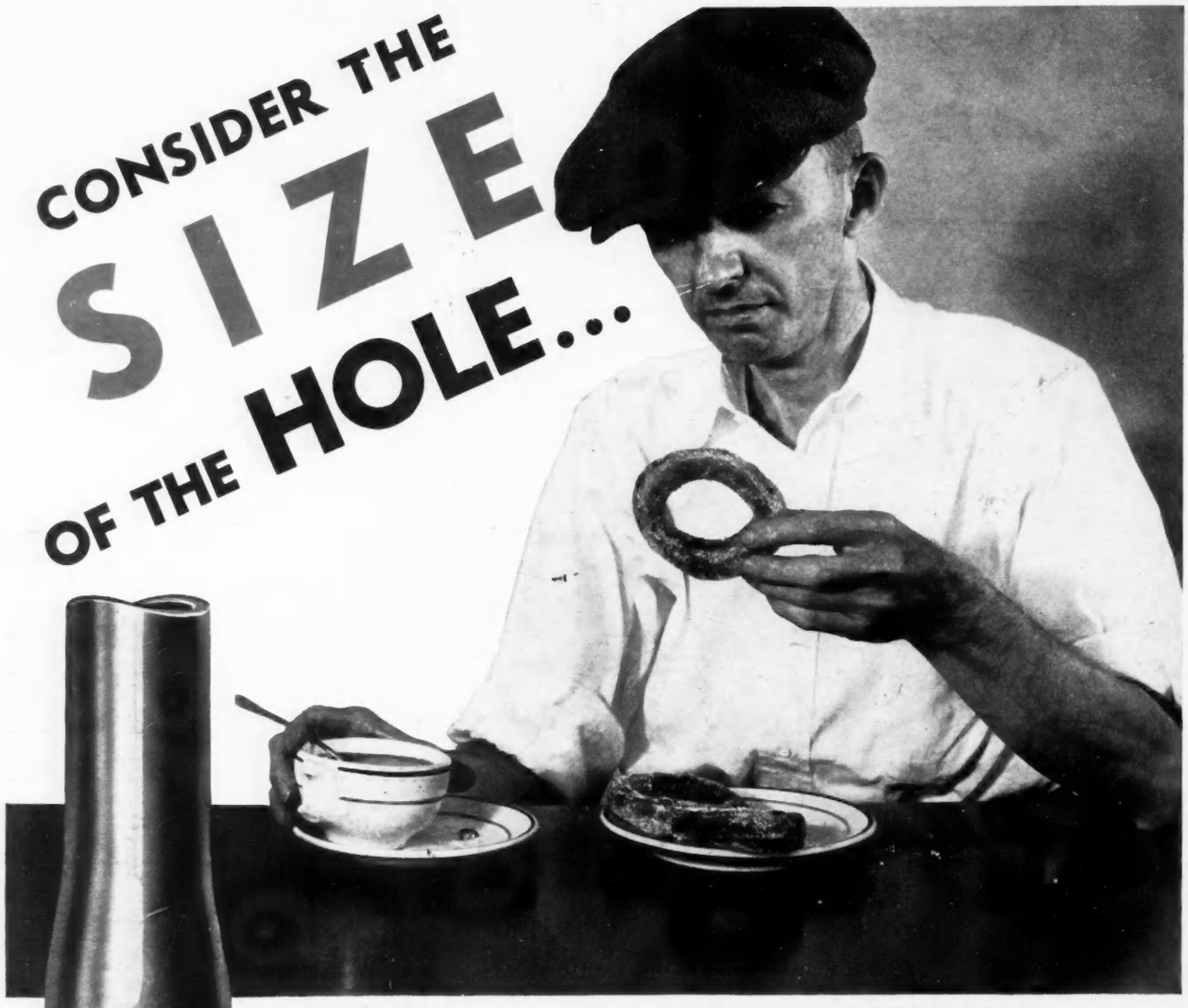

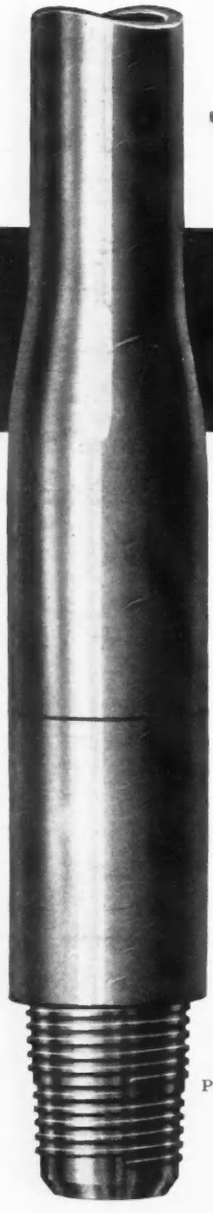

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